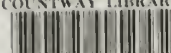



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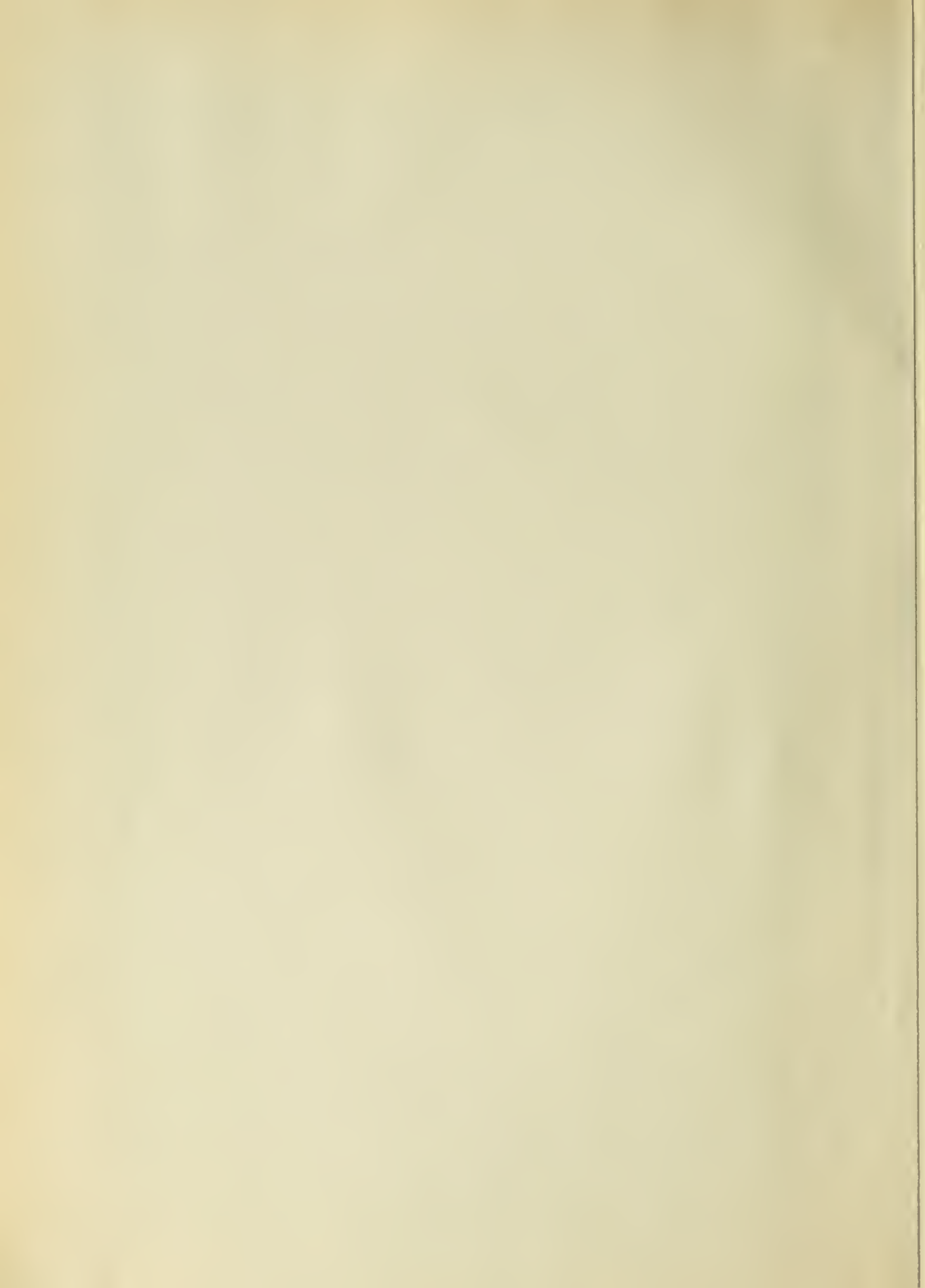
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# The Journal of the TENNESSEE STATE MEDICAL ASSOCIATION



Table of Contents on Page IV

Index to Advertisers on Page XXXVI

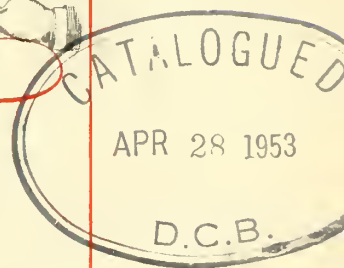
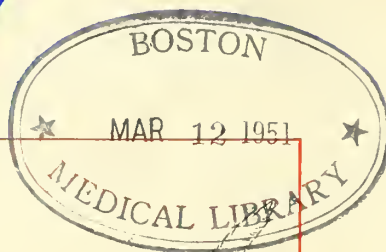
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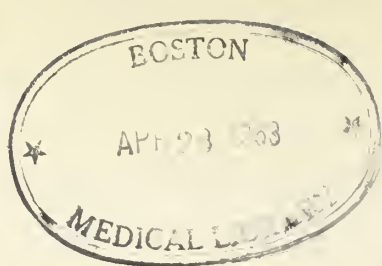
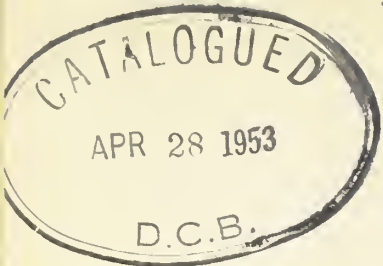


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# Journal of the Tennessee State Medical Association

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## GASTROINTESTINAL DISEASES—A SYMPOSIUM\*

J. MARSH FRERE, M.D., Chattanooga, Tenn., as Moderator.

To me a symposium on diseases of the gastrointestinal tract is very timely because we have just had Cancer Week. In 1929, 200,000 people died of cancer, and of

that number 100,000 had cancer in the gastrointestinal tract. I know we all will get a lot of benefit from the symposium this afternoon.

### ESOPHAGUS AND STOMACH

A. M. PATTERSON, M.D., Chattanooga, Tenn.

In the short time allotted I shall hurriedly run over most of these diseases, only mentioning a few, and limiting myself to generalities on the most common of them.

In the esophagus one may encounter: (1) congenital anomalies, (2) diverticula, (3) strictures, and (4) carcinoma. Less common lesions will have to be omitted. Atresia of the esophagus presents an intriguing subject. Since Haight reported his successful operation for tracheo-esophageal fistula seven years ago, many excellent articles on the subject and numerous successful operations have been reported in the literature.

Of the diverticula, the pulsion type occurring at the pharyngo-esophageal junction is the most common. There is often a weakness posteriorly at the junction of the inferior constrictor and crico-pharyngeus muscles, and this plus neuro-muscular incoordination allows the mucosa to bulge backward and turn laterally to form the diverticulum. This is now managed successfully surgically by the one stage operation. The less common diverticula are those of the pulsion type occurring just above the diaphragm, and the traction type in the region of the bifurcation of the

trachea. Strictures, usually from lye burns, may be mentioned in passing. Carcinoma of the esophagus has been a hopeless situation until recently. The work of Sweet, DeBakey and Oschsner, and Garlock are particularly noteworthy and offer hope of successful attack on this disease.

The diagnosis of these diseases depends on suspicion when dysphagia is noted and verification by careful X-ray studies.

Cardiospasm is easily diagnosed by the X-ray if it is kept in mind, though the cause is obscure. The treatment in the earlier stages is dilatation by the hydrostatic bag guided through the cardia on a previously swallowed silk thread. Some of the cases of extreme dilatation of the esophagus having changes in the walls due to fibrosis from ulcerations are best treated surgically either by the abdominal or thoracic approach. The object is to relieve the obstruction by a plastic procedure similar to the Finney or the Heineke-Mikulicz operations at the pylorus. Some prefer the Heller extramucous operation in which only the muscular layers are divided, similar to the Fredet-Rammstedt operation at the pylorus.

Diseases of the stomach are recognized mainly through symptoms of altered gastric function. Yet, it must be borne in mind that the majority of gastric symp-

\*Read before the Tennessee State Medical Association, Memphis, April 11, 12, 1950.

toms are from extra-gastric causes. Therefore, since the consideration of gastric diseases begins in confusion, and since gastric function may be altered by so many causes, it will serve our purpose best to consider gastric function first. This function is both motor and secretory. The motor function has to do with the filling of the stomach, the mixing of the food with secretions and ingested fluids and its emptying. This depends on the musculature, nerves and blood supply. The muscle fibers are so arranged that four different types of peristaltic waves and the proper amount of tonus can be effected. Food is received into the stomach, the liquids are hurriedly passed along the lesser curvature through the pylorus into the duodenum. The solid foods are mixed with the gastric juices and ingested fluids, stored in the fundus and parcelled out by the antral portion through the pylorus in small amounts as the duodenum is ready to receive them. During this motor activity a minor part of protein digestion takes place.

The secretory function is effected by the glands of the mucosa. The mucous membrane itself secretes mucous. In the fundus and body are secreted mainly hydrochloric acid and pepsinogen. In the antral portion is produced a modified mucous. In addition there is secreted the hormone gastrin and also an intrinsic factor which aids in the hematopoietic activity.

The motor activities of the stomach are primarily controlled by the autonomic action of its intrinsic nerve plexuses of Meissner and Auerbach. These are in turn influenced by an extrinsic innervation via the vagal and sympathetic nerves. The external influence serves mainly to coordinate the activities of the stomach with the remainder of the alimentary tract and the rest of the body. These extrinsic systems are under control of centers in the medulla and mid-brain, which are in turn influenced and coordinated by connections with the cerebral cortex. The efferent vagi are predominantly motor and secretory, their stimulation causing increased amounts of gastric juice to be secreted and an increase in the muscular tonus and movements of the

stomach along with a relaxation of the pylorus. Stimulation of the sympathetic nerves causes inhibition of the tonus and movements and contraction of the pylorus. There is, however, experimental evidence that other routes of stimulation and inhibition exist. The sensory mechanism of the stomach is similar to that of other hollow organs, the afferent impulses being conducted over both vagal and sympathetic systems. The stomach can be cut, burned and handled without pain so long as tension is not made on its walls. We, therefore, know that pain associated with gastric dysfunction is due to tension on the walls of the stomach.

With this functional background in mind, let us consider some of the states of dysfunction. The balance maintained between the vagus and sympathetic systems as they influence the intrinsic nerve cells of the stomach can be overthrown by numerous factors: first by factors arising in the gastric walls themselves,—such as pressure from overdistention, or infiltration of the gastric walls by inflammatory or neoplastic activity; second, by reflex activity from disturbances in other regions,—such as gallstones, appendicitis, an obstructed loop of gut, etc.; third, central activity from higher centers,—such as emotional stresses, tensions, frustrations, anger, etc. The cerebral cortex in normal individuals can inhibit these hypothalamic impulses, but many are not normal in these times. A common picture is that of a tense, ambitious, young man lying awake at night fighting his external surroundings, trying to make the mean old world fit into his plan, and all the while an excess of gastric juice is pouring into his duodenum. Organic lesions in the central nervous system may do the same thing. Fourthly, alterations in the blood supply may cause marked gastric dysfunction as seen in the gastric symptoms of portal hypertension, varying from vague discomforts to massive hemorrhage from varices. Furthermore, there are the passive congestion from congestive heart failure as well as the active congestion due to alcohol giving increased appetite in the evening and the reverse the next morning.



I have gone into some detail in discussing the physiology of the stomach in order to emphasize gastric dysfunction from extra-gastric causes. In the diagnosis of diseases of the stomach, gastric dysfunction from extra-gastric causes must be uppermost in mind, yet should never cause one to overlook organic disease. To diagnose gastric disorders, the physician might consider himself a juggler, keeping four balls in the air,—the psychic, the reflex, the circulatory and the organic.

The organic diseases of the stomach are: (1) the various forms and degrees of gastritis, (2) the benign tumors, (3) the several stages of peptic ulcer and (4) the malignancies. One also might mention hiatus hernia, prolapse of the pyloric mucosa, congenital hypertrophic pyloric stenosis.

Since the advent of the gastroscope, the inflammations have been given new emphasis. Gastritis may exist alone and have to be differentiated from ulcer and cancer, or it may accompany them and be responsible for the symptoms. An inflammatory reaction in the wall of the stomach may cause increased tonus in the empty stomach, enough to cause hunger pains. Food may relieve this because it causes the stomach to dilate, pain recurring when the stomach begins to empty. An ulcer may cause hunger pains, relieved by food and a return of

pain as the stomach empties. On bed rest and an ulcer regime the pain may disappear as the inflammation subsides, but on X-ray study, gastroscopic examination, or at operation, the chronic ulcer will still be found to be present.

The causes of gastric ulcer are not known, and since the condition is so similar to duodenal ulcer, I shall pass the subject of peptic ulcer of the stomach to the duodenum. The special consideration that gastric ulcer demands is due to the fact that it may be malignant. This makes it most important not to overlook a gastric ulcer.

Cancer of the stomach is most common in the antral region where it interferes early with emptying and may give rise to early symptoms. It may occur, however, in the body or fundus and give no symptoms before it becomes hopelessly inoperable.

In the treatment of dyspepsia the physician assumes a grave responsibility. He may be dealing with hyperemia from a simple cause or he may have an incurable cancer on his hands. To handle the case properly he must take the time to get a careful history and do a painstaking examination. He may try a therapeutic test of a short dietary regime with antispasmodics and sedatives, but if the patient is not promptly relieved he should understand the need of X-ray studies irrespective of the expense.

## THE SMALL INTESTINE

CECIL E. NEWELL, M.D., Chattanooga, Tenn.

In a symposium where each speaker is limited to fifteen minutes, no one can completely cover his allotted field. However, more of the subject can be crowded into a given time-space by a combination of summary and outline, and I shall make ample use of these expedients.

### *Anatomy*

The small intestine extends from the pylorus to the ileocecal valve and varies in length from 15 to 33 feet, the average being 25 feet. The duodenum is only 10 inches (25 cm.) in length, yet is the most important segment of the small intestine. It

extends from the pylorus to the ligament of Treitz and is usually divided into 4 portions: first, superior, 5 cm.; second, descending, 7 cm.; third, transverse, 10 cm.; fourth, ascending, 3 cm. long.

The jejunum begins at the ligament of Treitz, and the ileum terminates at a structure equally as concise, namely, the ileocecal valve. However, exactly where the jejunum stops and ileum begins has never been made clear to me. Luckily, its exact location is not of practical importance.

### *Pathology*

The pathological processes found in the

small intestine may be described under 4 headings: A. Congenital defects; B. Diseases; C. Injuries; D. Tumors.

### Congenital Defects

#### *I. Congenital Hypertrophic Pyloric Stenosis*

Since this condition was not mentioned by the essayist who preceded me, and since the pylorus is at the junction of the stomach and the duodenum, I shall include a short discussion of it here.

This defect is characterized by sudden and forcible vomiting which begins 2 to 4 weeks after birth. This vomiting is associated with colicky pains, gastric retention, dehydration, wasting, visible peristalsis, and frequently an olive-sized palpable mass in the epigastrium. If a small amount of thin barium is given the infant, the X-ray reveals the pyloric obstruction. Treatment should be medical at first, and surgical (Ramstedt operation) if the medical treatment fails.

It is interesting to note that some of these children never develop into large adults because of chronic malnutrition from persistent vomiting. I recently had such a case. This patient was a woman, 27 years old, who had never weighed over 88 pounds. She had had stomach trouble as long as she could remember and had vomited since infancy. X-ray study showed gastric retention and a defect at the pylorus which was suspected by the roentgenologist to be a carcinoma. At operation, no lesion of any kind was found in the stomach or duodenum except a hypertrophic pylorus. The anterior third of this thick muscle was resected and the defect was simply closed transversely. This patient made a rapid and uncomplicated recovery. She now weighs 112 pounds and has not vomited since operation which I performed a little over a year ago.

#### *II. Congenital Stenosis of Duodenum*

Occasionally (1:20,000 births) the anterior mesogastrium persists in such a manner that it binds down and constricts the duodenum, either partially or totally.

Diagnosis: 1. *Immediate* symptoms after birth (within 48 hours).

2. X-ray examination shows obstruction usually low in the duodenum.

Treatment: Surgery, cutting the mesogastrium, thereby releasing the obstruction.

#### *III. Congenital Atresia of the Small Intestine*

This defect occurs most frequently in the duodenum and next in the ileum in the region of the attachment of the vitello-intestinal duct. Multiple segments of the intestine are occasionally found to be solid. The symptoms are those of obstruction within 48 hours of birth. The diagnosis is confirmed by finding no hairs or squamous epithelial cells in the meconium (Farber's test), or by the X-ray. Treatment of this condition consists of immediate surgery, bypassing the obstruction by entero-anastomosis. This is lifesaving, if done in time.

#### *IV. Diverticula*

1. *Duodenal*. All of these are probably congenital, but are usually not found until the patient attains adult age; they are common, being found in 1 per cent of all autopsies. They never occur in the first portion; 75 per cent are found in the second portion, while the remainder occur in the third and fourth portions. Unlike those in the colon, duodenal diverticula are almost never subject to inflammation. Symptoms are few, and none are characteristic. The diagnosis is made either by X-ray or at operation. The treatment is to leave them be, unless they are producing symptoms when they may be removed. Technically, such may be a difficult operation.

2. *Meckel's*. This diverticulum is found in 2 per cent of all patients as a blind pouch or tube projecting from the lower ileum, 1 to 4 feet from the ileocecal valve. This defect is the result of an incomplete obliteration of the vitello-intestinal duct. It usually arises from the gut opposite the mesenteric border with its tip free, or occasionally attached to the umbilicus, in which case a fistula or cyst is frequently associated with the diverticulum. A Meckel's diverticulum may become inflamed, ulcerated, gangrenous, or perforated just as an appendix. It may contain foreign bodies. Occasionally, it becomes inverted and causes intussusception. Preoperative diagnosis is



difficult or impossible; treatment consists of surgical excision.

3. *Other*. Diverticula rarely occur below the duodenum. When they do, they frequently enter the mesentery.

#### Diseases

##### I. Intussusception

This condition has been curtly defined as "the passage of one portion of the intestine into another."

1. *Ileocecal*. These make up 80 per cent of all intussusceptions. Seventy-five per cent occur in the first year of life, and almost all of the remainder occur before the age of five. The ileocecal valve is the intussusciptions, as the ileum passes through the ileocecal valve. Typically, a healthy infant draws up its legs and cries intermittently with spasm, vomits early and develops a bloody mucous dysentery within 12 hours. A mass can often be felt in the abdomen. Sometimes the intussusceptum presents itself at or protrudes through the anus. Treatment is surgical with reduction, if possible; if impossible, it should be exteriorized. If neither is possible, resection is the only remaining choice.

2. *Other*. In adults, intussusception is usually caused by pedunculated polyps, other tumors, or by invaginated diverticula. While the exact diagnosis may not be made, the obstruction is obvious, and treatment is immediate surgical intervention.

##### II. Duodenal Ulcer

Etiologic factors have been speculative and varied.

Symptoms are typically those of epigastric distress, consisting of a fullness and burning pain which come on 2 to 4 hours after a meal and persist until the next meal is eaten, unless it is relieved in the meantime by taking alkalis or food, or by vomiting. These symptoms are uniformly repeated for a certain period of time only, to be followed by another period of distress. Symptoms may be very atypical and may not appear until the onset of complications which are obstruction, hemorrhage, or perforation.

Diagnosis is not difficult in 80 per cent of the patients. Cooperation between the

roentgenologist and clinician leads to better diagnosis. The examination of gastric content affords little diagnostic help in most cases of duodenal ulcer, although an increase in acidity and volume of gastric secretion is the rule.

##### Differential Diagnosis

1. Gastric ulcer. The differentiation is difficult and academic. Pain appears after meals earlier and there is typically the food-comfort-pain-comfort sequence.

2. Duodenitis. A differentiation which is difficult and often impossible. X-ray study shows no crater.

3. Hypertrophy of pyloric muscle in the adult. There is history of congenital stenosis, vomiting is prominent, ulcer symptoms are absent and the X-ray examination is confusing.

4. Chronic duodenal ileus (chronic dilatation). This presents ill-defined symptoms and is found usually by X-ray study.

5. Gallbladder disease. May be differentiated by the X-ray examination, type of symptoms and the type of patient (characteristically a fat middle-aged female).

6. Prolapse of gastric mucosa through pylorus. This is found by careful X-ray study.

7. Coronary occlusion. This may simulate perforated duodenal ulcer. It must be differentiated by X-ray and heart studies. Coronary disease is usually found in older patients.

8. Meckel's diverticulum. This may cause a silent hemorrhage (60 per cent) and negative X-ray findings.

9. Pulmonary tuberculosis. Many tuberculous patients complain of digestive disturbances highly suggestive of duodenal ulcer. X-ray examination of the lungs is invaluable.

10. Neurosis. This is often a difficult diagnosis; X-ray studies are negative.

Medical management should always be given a thorough trial in all uncomplicated cases of duodenal ulcer.

Surgical treatment may be used only after medical treatment has failed, or in the presence of complications.

1. Partial gastrectomy. This is the best with or without partial duodenectomy.

2. Gastro-enterostomy should be used only for marked pyloric obstruction and extremely poor condition of patient.

3. Excision and pyloroplasty. This may be tried if the ulcer is single, anterior, and if hemorrhage has occurred.

4. Vagotomy. This is an unsettled procedure.

5. Simple closure is performed for perforation.

Prognosis. A duodenal ulcer is not necessarily a serious disease, and many patients have never known they had a duodenal ulcer yet lead a normal life. Complications are dangerous and require surgical attack. The more chronic the lesion, the less is medical cure likely to take place.

### III. Regional Ileitis (non-specific granuloma, chronic cicatrizing ileitis, segmental enteritis, Crohn's disease)

Pathology. A granulomatous disease which involves chiefly the lymphoid tissues of the mesentery and sub-mucosa of the terminal ileum. The distal 5 to 20 cm. of ileum is the most frequent site; occasionally the upper ileum or jejunum may be the site. Distally it may extend into the colon. Occasionally multiple sections are involved with normal or nearly normal bowel between. The bowel is dusky, red, thick, has a rubbery consistency, and the lumen is uniformly narrowed. Later, exudate is present, the bowel is of irregular size and fibrotic. Adjacent mesenteric lymph nodes are always enlarged. There is a marked tendency toward perforative ulceration and the formation of internal and external abscesses and fistulae.

Etiology. This is unknown.

Symptoms. They are those of ulceration, then obstruction, and later fistulae.

Treatment. This is radical with complete excision of all the diseased bowel with end-to-end anastomosis after the acute phase is over, but before fistulae have formed. Often cures may be obtained. After fistulae have formed, the prognosis is not good, since all the affected tissue can rarely be removed. New treatments re-

cently advocated are not of proven value as yet.

### IV. Acute High Intestinal Obstruction

The cause in almost every instance is an adhesion from previous operation or inflammation, or a strangulated hernia. Occasionally a tumor and rarely a gall stone may cause obstruction.

Symptoms. They are those of acute ileus, followed later by signs of peritonitis.

Diagnosis. Usually this is easy by signs, symptoms, and X-ray examination.

Treatment. Immediate surgery with simple division of the constricting band is indicated. Resection is necessary if the gut is gangrenous.

Mortality. The 25 to 40 per cent rate is largely due to delay in operation.

### V. Mesenteric Thrombosis and Embolism

Usually this occurs in the superior mesenteric artery in men between the ages of 40 and 50 years who have myocarditis, endocarditis, or arteriosclerosis.

Symptoms. There is a sudden and violent onset with abdominal pain and collapse, subnormal temperature, and the signs of ileus. Bloody stools, vomiting, and generalized tenderness soon appear. There is early evidence of free peritoneal fluid and peritonitis.

Diagnosis. Frequently the condition simulates acute pancreatitis or perforated peptic ulcer. The serum amylase determination will rule out the former, whereas X-ray examination for air under the diaphragm is helpful, *but not* necessary in the latter.

Treatment. At an immediate operation the necrotic bowel should be exteriorized or resected.

Prognosis. Mortality without operation is approximately 90 per cent and with operation 60 per cent. There are occasional reports of cases surviving the resection of 18 or 19 feet of small intestines. Mesenteric venous thrombosis is more fatal because the symptoms are less abrupt and surgery is thus delayed too long since the patient is often ambulant the first 2 or 3 days.



### Injuries

#### *I. Without Penetrating Wounds*

These are caused by violent blows as of the fist, kicks, "run-over" accidents, crushing and water blast (under water explosions.) The diagnosis is too often not suspected.

#### *II. Penetrating Wounds from Stabs or Bullets, Etc.*

Symptoms. These are severe abdominal pain, signs of shock, pneumo-, hydro-, or hemo-peritoneum, abdominal rigidity, vomiting and leukocytosis.

Diagnosis. This is usually evident. It is aided by symptoms and signs, and air under the diaphragm shown by X-ray.

Treatment. This is a surgical emergency!

### Tumors

#### *I. Benign*

These are very rare and may be of several types. Adenoma (usually in the form of polyp), myoma, fibroma, or lipoma are the frequent varieties although Rankin and

I found hemangiomas, cysts, adenomyomas, and even osteochondromata.

Symptoms. They are those of the complication, obstruction, bleeding, intussusception (85 per cent of all intussusceptions in adults are caused by benign tumor of small intestine.)

Diagnosis. This is very difficult and usually the diagnosis is that of something else.

Treatment. Surgical removal is the necessary treatment.

Results. These are excellent, even with resection.

#### *II. Malignant*

These are rare and usually carcinomatous (less than 2 per cent of all cancers occur in the small bowel). The most frequent site is in or around the ampulla of Vater, next in the ileum, rarely in the jejunum. The diagnosis is difficult. Treatment is radical resection.

## THE LARGE INTESTINE

EDWARD T. NEWELL, JR., M.D., Chattanooga, Tenn.

Like other segments of the gastrointestinal tract, the colon is subject to many functional and organic diseases, so that in a brief fifteen minute resume, it would not be possible to discuss even the more common surgical problems. Rather, I would like to mention a few characteristics of carcinoma of the colon in the hope that we as physicians will become more conscious of colon cancer.

There are several reasons why we should keep this disease constantly before us in all patients whom we see over thirty-five years of age.

In the first place, these patients often present no chronological or characteristic symptoms in the early stages. It is only by the physician constantly keeping this disease in mind that the early diagnosis can be made.

Another important factor, which I believe is not appreciated by the medical profession at large, is that surgery of the colon is not the terribly radical ordeal that it was fifteen to twenty years ago. There are sev-

eral reasons for this:—a larger number of surgeons are now capable of doing excellent colonic surgery with a reduction in operative mortality to less than ten per cent; a marked reduction of hospital morbidity has occurred due to better anesthesia, pre-operative preparation and the use of antibiotics; also, the length of hospital stay, secondary operations on colostomies, etc. has been greatly reduced by more primary resections with end-to-end anastomosis. Many other factors could be mentioned to show that patients needing colonic surgery are benefited by the same advances which in recent years have permitted such dramatic and sometimes gratifying results in chest surgery.

My final reason for being "colon-cancer conscious" is that a large proportion of these carcinomas are slow growing and when adequately removed the five year "cure" or arrest period is most satisfactory. It is my belief that the curability rate is increasing and that the results are probably

as good or better than those of any other internal cancer.

From a clinical rather than a pathological view point, there are three main types of malignant growths of the colon:—the cauliflower type, the ulcerative annular type, and the multiple polyposis type undergoing malignant changes at different stages.

1—The cauliflower type occurs most frequently in the caecum and rectum when bleeding is often the earliest symptom. Severe secondary anemia is sometimes found with only a very minor history of passing red blood in the stools.

2—The ulcerative annular lesion sometimes has an insidious beginning in the form of mild abdominal cramping, which for a while the patient interprets as vague indigestion. These lesions are more common in the descending and transverse colon. Progressive weight loss may be the symptom which brings the patient to the doctor. Of course these lesions proceed on to obstruction, especially in the narrower descending colon. This type of lesion makes up the group the surgeon usually sees the earliest.

3—The third group is the most difficult to diagnose early because the adenomatous polyps may remain small and asymptomatic for some time. Malignant changes do occur however, which finally bring the patient for examination. This last group, is the type in which an entirely new carcinoma is found growing some years later in a patient who has already had one colonic cancer removed successfully. In my small experience this has occurred twice. The first case was a young man thirty-three years of age, in whom we removed a cancer of the transverse colon. He returned four years later, with no complaints, for a routine check-up. However, on X-ray examination a new malignancy was found. He was observed for three months during which time there was roentgenologic evidence of growth, although he remained symptom free. Surgery was then advised and a new growth was resected about six inches distal to the first lesion in the transverse colon. The patient is now seven years post-operative from the time of his first operation and apparently

is still well. The second case was that of a colored male, forty-one years of age, who had a cancer of the transverse colon which was resected successfully. He returned two years later with symptoms suggestive of appendicitis. We decided to observe the patient for twenty-four hours and as he improved, we thought it would be a good time to have a re-check colon X-ray. The examination revealed a large filling defect in the caecum. A right colectomy and end-to-side ileo-transverse colostomy was performed; the appendix was found attached to the lesion. This man is still well with no evidence of recurrence nearly four years following the first operation and two years following the second operation.

In returning to the early diagnosis of colon cancer one might ask what rule of thumb criteria we should use to further investigate a suspected case. Obviously, we cannot submit all patients over thirty-five years of age to a roentgenologic survey of the colon. It is our suggestion that the following list of four types of complaints and symptoms be subjected to a simple X-ray survey of the colon. Although this list is not original with us, we think it a good one to follow:

1—Patients with chronic blood loss, manifested by blood in stools and less often secondary anemia.

2—Patients with significant and progressive changes in bowel habits with frequency, increasing constipation and tenesmus.

3—Patients with vague abdominal pain of a colicky, cramping type, often intermittent in character.

4—Patients with a palpable abdominal mass and no localizing symptoms to the colon.

Naturally, all of these groups tend to overlap as the disease progresses, but in the early stages the patient is often conscious of only one symptom complex. To illustrate the fourth, a physical sign, a forty-four year old married woman was referred to us by an out of town doctor for a hysterectomy because of a diagnosis of fibroid of the uterus. In order to save time and hospital expense, the patient was examined by me one afternoon, an operation



having previously been scheduled for the following morning. The patient's chief complaint was a heavy sensation in the lower abdomen along with some menorrhagia. At the time of the examination, I could not be sure the mass was attached to the uterus, but I was rather inclined to feel that this mass might be a left ovarian tumor. Being "colon-cancer conscious," I asked the patient about her bowel habits in great detail and finally she decided that her bowel habits were definitely changing. The hysterectomy was cancelled and barium enema and sigmoidoscopy were performed revealing a lesion of the lower sigmoid colon. After proper preparation, a resection was performed with a primary anastomosis. Like the cause of the appendicitis

symptoms in the second case, the left ovary in this instance was found adherent to the lesion. This patient is still well four years post-operatively.

In conclusion, I would like to emphasize some points which were mentioned earlier by our moderator, Doctor J. Marsh Frere, namely that cancer is growing more important as more people grow older. It is estimated that nearly 200,000 people die of cancer each year in the United States; of this number, 100,000 are due to cancer in the gastrointestinal tract and over one-half or 50,000 of these are the result of cancer of the colon. Is there any wonder why we should not become more "colon-cancer conscious"?

## THE RECTUM AND ANUS

O. C. GASS, M.D., Chattanooga, Tenn.

I propose to spend my allotted time discussing bleeding from the rectum. This is the most common sign or symptom, with the possible exception of pain and protrusion, for which the proctologic patient seeks medical advice. We cannot hope to discuss all the causes of rectal bleeding but will confine our remarks to those which I believe will be most interesting to you namely: (1) carcinoma, (2) diverticulitis, (3) chronic ulcerative colitis, (4) polyposis, and (5) hemorrhoids, fissures and related anal conditions.

### Carcinoma of the Rectum

The bleeding in carcinoma of the rectum is both an early and a late sign. It is early in that it is frequently the first sign which the patient notices. It is late in that the tumor is already large, having been present six to eighteen months and having outgrown its blood supply whereby it has undergone necrosis and slough. The blood is therefore mixed with debris and necrotic tissue so that the patient often does not recognize it as blood. The necrotic tumor mass gives him the urge for a bowel movement yet he passes only dirty-bloody material and is left with a feeling of incomplete emptying. The average patient

will experience these symptoms eight to twelve months before he comes to operation. Even if a diagnosis is made at the onset of symptoms he is still a year late. The tumor should have been found and fulgurated as a small adenoma instead of waiting until symptoms occur.

When a diagnosis of cancer of the rectum is established what is the prognosis as to longevity? In any large series a five year "cure" in 50 per cent is the usual result. Patients with glandular metastasis are usually quite well for about two years then experience a recurrence either locally or in the liver. However, 30 per cent of these will be living and well at the end of five years. Sixty per cent of those without demonstrable lymph-node metastasis will be well and happy at the end of five years. It is my opinion that the Miles abdominoperineal resection is the most conservative operation since it offers the most radical removal of the involved area and results in fewer local recurrences. This is extremely important since the tumor or local recurrence in the hollow of the sacrum accounts for the patient's excruciating pain during his terminal months. As an illustration of what can be done for a well ad-

vanced case of cancer of the rectum I will read briefly a case report of one of my earliest patients.

Mrs. O. L. G., white female, age 36, was referred to me in November, 1945, with a diagnosis of cancer of the rectosigmoid: She had been quite normal in her bowel habits until 10 months previously when she began to have early morning diarrhea, incompleteness of evacuation and the passage of a small stool three times daily consisting of dirty looking material in which a little blood was frequently noted. She had lost ten pounds during the ten months. Examination revealed a circumferential, nodular, ulcerative cauliflower-like mass of the rectosigmoid colon. An abdomino-perineal resection was performed after proper preparation. An extremely large tumor was removed which completely filled the pelvic inlet. There was not room to insert the hand in the presacral space so that the dissection was done with the index finger. The rectum was amputated distal to the tumor and the involved portion of the gut removed through the abdominal incision. The operation was then completed in the usual manner.

The pathologic report was as follows: The specimen is 27 cm. in length, consisting of anus, rectum and sigmoid colon. About 10 cm. from the anal end there is an ulcerated, elevated firm tumor mass occupying 8 cm. of the mucosa in the longitudinal direction. It apparently involves the entire circumference of the wall. Sections through the mid-portion reveal that it has displaced the entire wall with invasion of the perirectal fat. There has been a perforation of the base into the perirectal fat, which is completely walled off. A number of lymph nodes are present in the surrounding fat most of which appear negative but one or two offer suspiciously certain metastases. Diagnosis: Adenocarcinoma rectosigmoid colon Grade 2; regional lymph nodes negative.

This patient was last seen January 19, 1950. She was quite well and does all of her work for her husband and three children. She has had one pregnancy since her operation. Her only complaint is that her appetite is so good that she is gaining too much weight.

This case is presented to show the surgical possibilities in far advanced rectal cancer. The mortality in this operation should be less than 5 per cent. The late Tom Jones had a series of 137 cases without a death. In my own series I have lost two "service" cases but no private cases. One death was from a transfusion reaction, the other was from an obstructing primary cancer of the prostate and uremia two weeks post-operatively. He was quite well until his indwelling catheter was removed on the tenth day.

### Diverticulitis

In diverticulitis or possibly diverticulosis, because these cases usually display no signs of infection, the bleeding is quite different from that of cancer. Bleeding occurs in otherwise healthy individuals with no gastro-intestinal symptoms. They are often seized with abdominal cramping as if they had taken an enema and a large amount of fresh blood is passed. This phenomenon usually repeats itself five or six times over a period of twenty-four to thirty-six hours with the blood gradually subsiding and becoming dark in color. The treatment of this condition is largely a process of treating the symptoms. Vitamin K, sulfasuxidine and occasionally transfusion are employed. The majority simply need reassurance. A proctosigmoidoscopy and double contrast barium enema should be done to establish a definite diagnosis and to eliminate cancer, since carcinoma may bleed in a like manner.

### Congenital Polyposis

The bleeding in polyposis of the rectum and colon is extremely variable depending upon the number of polyps, their size, whether the condition is segmental or generalized and whether malignancy is superimposed. Frequently three to six semi-liquid stools are passed daily, in which streaks of old and bright red blood are seen. Obstructive symptoms are usually absent. The treatment of choice is fulguration of the polypi for a distance of 15 to 25 cm. through the sigmoidoscope and then colectomy with anastomosis of the ileum to the rectosigmoid colon. The great difficulty here is that the patient usually dies of cancer of the rectum at a later date. This can be prevented if the patient is co-operative and returns at regular intervals for proctoscopic examinations and fulguration of any additional polypi which most assuredly will develop.

### Chronic Ulcerative Colitis

All of you are more or less familiar with the characteristics of the bleeding in chronic ulcerative colitis. It varies according to the severity and duration of the disease and the amount of the bowel in-



volved. I am of the opinion that this condition may be superimposed on a bacillary, amebic, allergic or psychosomatic diarrhea. However, I consider infection as the deciding factor in every case. It has been my privilege to follow a few cases through from a localized infection in the lower rectum to a generalized colitis and fatal termination. In the early stages, with the infection localized in the rectum, there is usually no diarrhea. The patient has his normal daily formed stools but two or three times during the day he will pass a little blood or a mixture of blood and pus. Intensive therapy at this stage will give the best results. During the past two years I have been using a mixture of sulfanilamide and sulfathiazole locally with an apparent cure in every case. In generalized colitis the medicament is incorporated into a cocoa butter suppository which the patient inserts after each evacuation. There seems to be no systemic effect. It has been used in sulfonamid sensitive individuals with equally good results.

#### Hemorrhoids and Fissures

Blood from the anal region is characteristically bright red in color and usually follows the stool rather than being mixed with the stool. The blood often drips into

the commode or is noted as streaks on the tissue paper or stools. Whenever bleeding is present there is erosion or ulceration, and characteristically ulceration in this area produces varying degrees of pain. Painless bleeding should always incite us to further study and examination.

#### Summary

The bleeding which occurs in diseases of the rectum and anus is fairly typical and almost diagnostic, but cancer and hemorrhoids so frequently occur together that a hemorrhoidectomy should not be performed before cancer is eliminated. This is best done by a careful digital examination and direct visualization through the proctosigmoidoscope. When a finger is inserted into the rectum and a nodular fixed mass with rolled edges is encountered it is cancer. One can diagnose cancer of the rectum by this procedure almost as surely as one can look at one's hand and count the fingers. Only the extremely early lesions and those complicating ulcerative conditions offer difficulty. Careful palpation of the abdomen for a tumor or a distended, tender sigmoid colon is always invaluable. Finally, barium enemas are indicated if the lesion is not definitely located and limited to the rectum.

## X-RAY DIAGNOSIS

JOHN M. HIGGASON, M.D., Chattanooga, Tenn.

This paper is a brief discussion of the X-ray findings in different lesions of the several parts of the gastro-intestinal tract. (The lesions were demonstrated by slides.)

In doing gastro-intestinal diagnostic work, one of the most important points is that the one doing the examination be well acquainted with the normal.

#### Esophagus

In roentgen study of the esophagus usually a thick barium mixture is used first. Then depending on the condition to be studied, a barium filled capsule or a small piece of cotton dipped in barium may be used.

##### A. Congenital Anomalies

1. Atresia. With the instillation of a few

drops of lipiodol a typical cul-de-sac opposite the third dorsal vertebrae is visualized. There may or may not be a fistulous connection with the trachea or bronchus. If there is air in the small intestine it is diagnostic of a fistula.

2. Stenosis. There is fibrous narrowing at different levels, the area of involvement being smooth and small.

3. Congenital webs, bands or membranes may cause narrowing of the esophagus.

B. *Benign Stricture* or Stenosis. Most often these are due to the swallowing of caustic substances (lye), acids, bichloride of mercury or ammonia. Also strictures may result from infectious diseases and

from a peptic ulcer. Trauma from foreign bodies may cause stricture.

The lumen is narrowed and tapers irregularly, usually being dilated above the obstruction. Simple stricture usually persists 2-3 inches above diaphragm (a level lower than in congenital stricture.)

C. *Cardiospasm*. This is an obstruction at the level of the esophageal hiatus. The lumen tapers smoothly and concentrically to a filiform ending at the level of the diaphragm. Usually it is of years' duration. The marked dilatation above the constriction may be mistaken for a mediastinal tumor, a fluid level may be observed at the level of the sternal notch. The differential diagnosis must include fibrous stricture, neoplasm, esophagitis, diverticulum and peptic ulcer.

D. *Tumors*. Intraluminal ones are practically all carcinomas, 5 per cent of all carcinomas. Ninety per cent occur in males.

The X-ray reveals an abrupt transition from a normal configuration to irregular narrowing of the lumen. There may or may not be dilatation above the site of the narrowing. Fluoroscopic examination aims to observe normal mucosa beyond the lesion to determine the length of the involvement.

Of intramural (extraluminal) tumors, leiomyomas and fibromas are the most common. They produce a single, circular negative type of filling defect which has smooth and regular margins and are localized to a small area. They encroach on the lumen, diverting and sometimes forking the stream of barium. These lesions produce sharp margins, while extrinsic lesions, causing pressure, usually produce a gradually sloping defect whose margins are not sharp. Traces of normal mucosa may be seen in the upper and lower margins.

E. *Diverticulum*. This is a pouch-like extension from the lumen of the esophagus.

1. The pulsion type occurs at the pharyngo-esophageal (Zenker's pouch) junction. (Really this is a herniation of mucosa and sub-mucosa of the hypopharynx between the circular and oblique fibers of the inferior constrictor muscle.) When small it appears spherical and is posterior to esophagus. As

it increases in size it projects to the left and becomes pear shaped. Frequently it has a narrow neck and retains barium for long periods of time. It may produce narrowing of the esophagus at the ostium and frequently produces extrinsic pressure.

2. Traction type is usually found in the middle third, resulting from traction on the esophagus from without, due to inflammatory nodes, diseases of vertebra, etc. Differing from a pulsion diverticulum they are usually triangular in shape, pointing outward and upward, the apex being higher than the base or mouth of the pouch. Usually they are on the anterior or anterolateral wall, fill and empty readily without symptoms. These may not be detected unless the patient is examined in the horizontal position.

3. Traction-pulsion diverticulum (epiphrenic) occurs in the lower esophagus, close to the diaphragmatic hiatus. The element of traction may not always be present and then the diverticulum is purely of the pulsion variety. Ordinarily it projects from the right side of the anterior wall of the esophagus. Symptoms are rare. Up to 1937 only 49 cases had been reported. These must be differentiated from hiatus hernia or large penetrating peptic ulcer of the lower esophagus.

F. *Peptic ulcer* practically always occurs in the lower third of the esophagus. Roentgenographically there may be an ulcer niche, though infrequently. Usually an abnormality is seen, such as a spastic defect producing intermittent narrowing of the lumen or an incisura. One may see a narrow stenotic area with varying degrees of dilatation above.

G. *Esophageal varices* most often involve the lower third, although the entire esophagus may be involved. The affected area of the esophagus appears to be moth-eaten, wormy or jagged in outline. There may be extreme distortion and irregularity of the rugal markings which may even appear as a nodular invasive lesion.

H. *Foreign bodies* will be seen on a plain film if they are radiopaque. If not, a barium swallow and fluoroscopy are necessary. One may use small pieces of cotton or a barium



filled capsule. Coins in the esophagus are seen en face in the antero-posterior view and on edge in the trachea.

I. *Plummer-Vinson or Paterson-Brown-Kelly Syndrome* (post-cricoid web). This occurs in middle aged women with dysphagia and hypochromic microcytic anemia. There are also glossitis, cheilosis, pharyngo-esophagitis and other signs of vitamin B deficiency. Fluoroscopically, in these patients spasm and or a web can be demonstrated in the post-cricoid region; the web may be multiple. The web juts out from the anterior wall into the barium column like a thin shelf.

*Hiatus hernia* represents a herniation of various parts of the stomach through the esophageal hiatus. This may be visualized on the chest film as a large pocket of gas in the retrocardiac region. Others are visualized by giving barium and doing a fluoroscopy with the patient in supine and prone positions. Some are demonstrated only when the patient coughs or performs the valsalva test.

### Stomach

*Gastric diverticulum* is rare. It is seen as a small out-pouching high on the posterior gastric wall with its stoma just below the cardiac orifice. Ordinarily it is thought these produce no symptoms unless they become large. A few that retain barium 24 hours or so may possibly produce some symptoms which have to be differentiated from those of ulcer. Recently I had a patient with a large one and it was removed and found to have a superficial ulceration. This one retained no barium at the 24 hour examination.

*Gastric Ulcer and Carcinoma.* In examining the stomach every portion of it should be studied as thoroughly as possible. This is best done beginning with a small amount of barium and using compression. In this way the mucosal pattern can be well visualized and studied. By this method ulcers on the anterior and posterior walls can better be demonstrated. Patients should be studied in different views as in both the standing and recumbent (prone and supine) positions. The smooth outline of the fundus

is best demonstrated in the supine position. Peristalsis should be carefully observed.

The majority of gastric ulcers which are recognized clinically and roentgenoscopically are located near the lesser curvature. Visualization of a niche or crater is pathognomonic of an ulcerating lesion. If near the lesser curvature the deformity is most often seen on profile and appears as a diverticular bud or knob-like projection extending from the lesser curvature. Visualization of an ulcer crater "en face" appears as a small round dense barium shadow or spot (fleck). At times rugal furrows and folds will be noted to converge at the ulcer site, this usually means a benign ulcer. It is frequently not possible to differentiate a benign ulceration from a malignant one. Gastric carcinoma is found most commonly in the pyloric antrum; thus ulceration in this location and along the greater curvature and fundus are often malignant. The size of the crater is no criterion.

A carcinoma often shows a filling defect, sometimes without demonstration of a crater. An irregular barium spot surrounded by a translucent halo is an important sign of ulcerating carcinoma; the spot representing the irregular ulcer crater, surrounded by protrusion of the mucosa due to edema and malignant infiltration. This is known as the "meniscus sign." This is the "en face" view; when seen on profile, a crater or niche is visualized, surrounded by the area of infiltration. The crater does not extend beyond the outline of the barium filled stomach. With this type of crater the mucosal folds are not seen converging toward the crater as in benign ulcers. The malignant ulcer often shows irregularity in its contour; of course a benign crater may contain necrotic or granulation tissue, blood clot or food particles and also appear irregular. The association of a deep smooth spastic incisura on the greater curvature opposite to a niche is indicative of a benign lesion, while the incisura associated with malignant ulcers are usually shallow, broad and quite irregular.

A lesion is considered potentially malignant if any of the following are present: (a) "meniscus sign" (of Carmen) or the

"niche en plateau," (b) a lesion of the greater curvature, (c) presence of a subtraction defect in association with the ulcer, and (d) the coexistence of an achlorhydria.

*Benign Tumors of the Stomach.* These include adenomatous polyps, leiomyomas, neurofibromas, fibromas, lipomas, etc. These are rare. Usually the benign gastric polyp is an adenoma. The term polyp refers to the gross appearance of the tumor, not to its histologic structure. Roentgenologically they are best demonstrated by use of a small amount of barium for a careful study of the mucosal pattern and the employment of compression. They appear as an oval or circular translucent filling defect. Usually the contours are sharp and the polyp may be slightly movable depending on the length of the pedicle. Polyps may be single or multiple.

Prolapse of the gastric mucosa through the pylorus may cause a central translucent filling defect in the duodenal cap and be confused with a pedunculated tumor. If due to prolapse of the mucosa, a defect may be seen in the pyloric canal which may show longitudinal striations.

#### Duodenum

Ulcers of the duodenum are demonstrated and appear like those of the stomach. The crater may be seen projecting from one of the curvatures of the bulb, or the crater may be demonstrated "en face." Relief studies, utilizing compression, are necessary to demonstrate many ulcer niches. They are most common on the lesser curvature aspects. One cannot always demonstrate the ulcer crater, but irregular deformity of the duodenal bulb is due in 95 per cent of the cases to an ulcer which may or may not be active. Patients of a hypersthenic build present the most difficulty in demonstrating an ulcer defect, since the duodenal cap is directly posterior to the pyloric canal. Lateral films are frequently necessary to adequately visualize the bulb in this type patient.

Approximately 95 per cent of duodenal ulcers occur within 3 cm. of the pyloric ring; 5 per cent occur distal to the cap.

#### Small Intestine

*Diverticulosis.* The duodenum is the

second most common site for diverticulosis (2 per cent) in the alimentary canal, the colon being first. Over 95 per cent of duodenal diverticula project from the inner concave curve in the second, third and fourth portions of the duodenum. When filled with barium they are usually oval in shape, often resembling an inverted Erlenmeyer flask, usually showing a comparatively narrow neck and sometimes a tendency toward slight pedunculation. Although it is rare, an ulcer or carcinoma can occur within a diverticulum.

*Diverticula* of the jejunum and ileum are less common.

A study of the small intestine is best done by using a small amount of barium, so as to prevent overlapping of the loops. The normal mucosal pattern of the terminal duodenum and upper jejunum is of a coarse herringbone appearance; in the lower jejunum and upper ileum the mucosal pattern takes on a fine, feathery, flaky appearance. The terminal ileum commonly lacks a mucosal relief pattern on the roentgen film, appears usually as a segmented column or cylinder. In deficiency states associated with hypoproteinemia and avitaminosis, and in marked defects in the absorptive system, as in steatorrhea, regional enteritis, etc., there is a loss of the normal feathery, flaky appearance and there is smoothing out of the mucosal folds. At times a nutritional deficiency may produce exaggeration of the mucosal markings, this is usually early in the case. Also areas of dilatation and puddling alternate with segments which appear narrow or remain free of barium.

*Tumors of Small Intestine.* Neither benign nor malignant tumors of the small intestine are diagnosed frequently by X-ray until obstruction has occurred. Benign tumors may produce obstruction by pressing against the wall of the intestine; they displace the barium producing a filling defect. Carcinoma produces an annular napkin-ring type of X-ray defect. Approximately 3 per cent of all malignant tumors of the gastrointestinal tract occur in the small intestine. In a series of 228 cases of cancer of the small intestine (Hoffman and Pack)



45.6 per cent occurred in the duodenum and 54.4 per cent in the jejunum and ileum. The most common location is in the second part of duodenum.

#### Regional Ileitis and Ileocolitis

Roentgenologically the lumen of the involved segment appears irregular and narrow and frequently shows filling defects. The lumen may be extremely narrowed and produce a "string sign" (Kantor). There may be some dilatation of the loop proximal to the lesion. The area of involvement may be a few inches, or a foot or more in length. Also there may be deformity of the cecum, producing a teat-like defect, or a concavity in the mesial portion, at the ileocecal junction. The latter is an important sign, particularly if the terminal ileum cannot be filled either during the progress meal or the barium enema study.

The terminal ileum and cecum are also involved by tuberculosis more frequently than any other part of the gastrointestinal tract. In such instances the small intestine shows a distortion of the mucosal pattern, the Kirkring folds are prominent and irregular, there is segmentation with some dilated loops. The loops may be long, narrow and rope-like, that is, with loss of the mucosal pattern and a stiff appearance. There may be matting of the loops of bowel. This picture cannot be differentiated from nonspecific enteritis. When there is involvement of the cecum and ascending colon these will be markedly spastic and will frequently not retain barium. If large ulcerations are present, irregularity of the bowel wall may be visualized. In the hyperplastic type there is an irregular filling of the cecum due to filling defects.

#### Colon

*Simple acute colitis.* The inflammatory process results in extreme hypermotility. Fluoroscopically large mass movements can be seen sweeping the colon from cecum to rectum. If the inflammation becomes very intense, there may be hyperplasia of the lymph follicles, giving rise to a feathered margin of the mucosal lining of the bowel.

*Ulcerative colitis* (nonspecific or idiopathic). In its acute stage it shows mani-

festations no different from those of acute colitis. When the disease becomes chronic the gut loses its normal haustral markings and assumes a smooth appearance throughout the involved area. Later there is narrowing of the lumen. The ulcerations themselves are very shallow and are not seen roentgenologically. In the chronic stage, hypertrophy of the lymphoid tissue may produce pseudo-polypi.

*Tuberculous colitis.* This is most likely to involve the cecum or rectum. The cecum is extremely irritable when involved, causing it to be narrow in caliber and irregular in outline. Filling defects are seen in the hyperplastic type. Solitary tuberculous lesions of this sort may be difficult to differentiate from carcinoma, but the co-existence of pulmonary tuberculosis is an almost inseparable sign.

*Amebic dysentery* produces hypersensitivity and spasm of the cecum. Chronic ulcerative colitis from amebic dysentery does not differ in appearance from chronic ulcerative colitis of other causes.

*Intussusception* causes typical appearances with the barium enema. The barium going around the intussuscepted mass forms a ring-like shadow or cupping which is very evident.

*Carcinoma of colon* may occur in any location in the bowel. On barium enema it may be demonstrated as a napkin ring-like constriction or as a large irregular filling defect with associated narrowing. Depending on the amount of constriction or obstruction to the lumen, there may be some dilatation of the bowel proximal to the lesion with at times an associated fecal impaction.

*Polypsis of Colon.* Polypi are best demonstrated by the use of a barium-air double contrast enema. These may also be well demonstrated by using tannic acid in the barium solution. This causes the colon to empty and the mucosal pattern is well visualized. Some use a thin barium mixture with gum acacia. The polypoid lesions are visualized as projections into the intestinal lumen which stand out in sharp contrast in the air-distended bowel. If single and small they are extremely difficult to demonstrate

at times. If numerous they may be seen as small radiolucent areas in the barium. The colon must be thoroughly cleaned out.

*Diverticulosis of Colon.* These occur most frequently in the sigmoid and descending colon. Roentgenologically they appear as bud-like projections extending outward

from the lining of the gut. They may retain barium for several days after complete evacuation of the rest of the bowel.

When there is associated spasticity, irregularity and accentuation of the haustral markings with tenderness, it is usually an indication of diverticulitis.

## **PATHOLOGY**

**JACK ADAMS, M.D., Chattanooga, Tenn.**

A description of the pathology of the diseases discussed in the symposium and

their illustration by Kodachrome slides closed the symposium.

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**The Question of Trachoma in the Lacrimal Passageways of Discharge.** Scuderi, G., and Monciino, N., *Am. J. Ophth.* 33:1817, 1950.

An extensive review of the literature and a clinical study of 1,000 cases of trachoma are presented. Seventy lacrimal sacs were examined histologically, of which 44 were in trachomatous patients and 26 in individuals with chronic dacryocystitis. In 16 of the former group histopathologic changes were found which were truly trachomatous. There were hyperplasia and degeneration of the epithelium, many characteristic follicles with degeneration, and fibrosis. It is possible that the trachomatous process may spread from the conjunctiva to the mucous membrane of the lacrimal sac. (Abstracted by Robert J. Warner, M.D., Nashville, Tenn.)



**Hyperparathyroidism and Urolithiasis.** Beard, D. E., and Goodyear, W. E., *J. Urol.*, November, 1950.

The belief of the majority of urologists that hyperparathyroidism is rare and is an insignificant cause of renal calculi is erroneous. This concept has led to a lack of interest and understanding of

the disease. The authors studied 150 cases of renal calculi, in which 12 cases of hyperparathyroidism were found and proved to be the cause of the calculi. This is approximately 8% in this series. The patient may have no symptoms of hyperparathyroidism except the renal calculi. Sometimes there is polyuria, aching in the extremities and joint pain and sometimes weakness, fatigue and loss of appetite. Physical examination is of little value. Bone changes of osteitis fibrosa cystica, once regarded as necessary for diagnosis, are present only in the very late stages of the disease. Diagnosis is established mainly by laboratory study. Any elevation of the serum calcium above 10.5 mg. must be considered strongly suspicious for hyperparathyroidism. Serum phosphorus levels are decreased. Values below 3.0 mg. when associated with an elevation of the calcium is considered diagnostic. There is a constant finding of excess calcium in the urine and a urinary output of 130-200 mg. of calcium in 24 hours is suggestive of hyperparathyroidism. Repeated studies should be done when the diagnosis is in doubt. The authors present the details of 12 cases of hyperparathyroidism which caused renal calculi. In each case the parathyroid tumor was found at operation. (Abstracted by Oscar Carter, M.D., Nashville, Tenn.)

UNIVERSITY OF TENNESSEE COLLEGE  
OF MEDICINE PEDIATRIC CLINICAL  
CONFERENCE,\* DECEMBER 13, 1950

*A Case of Pyloric Stenosis*

DR. TOM MITCHELL: Our case is one of pyloric stenosis, a condition of much pediatric interest in that vomiting is such a common symptom in the first weeks of life, and so many different causes may produce it. Furthermore, there is a need to apply more effectively modern methods of management of pyloric stenosis which experience has shown will result in recovery of almost every baby having the disease.

Dr. James Tuholski will summarize the findings in the case for consideration today.

DR. JAMES TUHOLSKI: This is the case of a five-week-old colored male who was apparently in good health until two days before admission, when vomiting, often forceful, began immediately following feedings. The child immediately vomited water or formula. No blood or bile was noted in the vomitus. There was a complete absence of stools for the four days prior to admission.

Delivery and the subsequent course were entirely uneventful until the advent of the present episode.

*Physical examination* on admission revealed an acutely ill, weak, febrile, dehydrated male with Cheyne-Stokes respirations. The fontanel was sunken; the eyes were prominent and deeply set; the lips were dry and cracked; the skin was of poor turgor. The abdomen was large and asymmetrical. During feeding, active peristaltic waves were visible, traveling from the left upper abdomen toward the right upper quadrant. No tumor masses including pyloric tumor were felt. Initial laboratory work showed: RBC of 4.6 million, hemoglobin of 12 Gm., WBC of 9,000. The differential was not remarkable. Whole blood chlorides were 320 mg. per cent. CO<sub>2</sub> combining power was 68 vols. per cent. Urinalysis revealed a weakly positive acetone test, a two plus proteinuria and a pH of 6.0. A roentgenogram of the chest and abdomen showed the chest to be clear and the heart of normal size and contour. There was marked gastric dilatation with an absence of gas in the small bowel and colon.

A program of electrolyte correction was undertaken at once. After a 24-hour period of intravenous and clysis fluid administration, consisting of saline, Ringer's solution and whole blood, the CO<sub>2</sub> combining power was 58 vols. per cent and the whole blood chlorides were 370 mg. per cent. Thirty-six hours after admission, fluoroscopic ex-

amination of the stomach with barium revealed resistance to the passage of barium through the pyloric canal, with retention of barium in the stomach after four hours. Two days after admission the whole blood chlorides were 482 mg. per cent.

On the fourth hospital day the general condition of the infant was considered adequate for surgery; a Rammstedt procedure was performed. The surgeon found a typical olive-shaped pyloric deformity. Postoperatively, the infant received parenteral fluids intermittently for 24 hours, followed by a diluted proprietary powdered milk preparation and water which were sufficient for adequate hydration. No vomiting was noted postoperatively. Hospitalization was prolonged because of two generalized convulsions on the sixth and seventh postoperative days. All studies undertaken in an effort to establish the cause of the convulsions were nonconclusive. The cerebrospinal fluid and blood cultures were negative. Calcium, phosphorus and CO<sub>2</sub> combining power were well within normal limits. A subdural tap was negative. The infant was discharged on the thirty-sixth hospital day. Subsequent follow-up shows the infant to be developing normally with no recurrent convulsions.

DR. MITCHELL: This is a characteristic case of pyloric stenosis, complicated by convulsions for which we have been unable to determine a cause. It wasn't on a chemical basis, was it, Dr. Etteldorf?

DR. JAMES N. ETTELDORF: No, sir; there is no evidence from our analyses or reports.

DR. MITCHELL: Chemical imbalance might be involved. Later you may give us some idea about fluid and chemical changes in pyloric stenosis before and after operation and a few remarks on its treatment. Now let us consider the diagnosis and differential diagnosis of pyloric stenosis. Dr. James Hughes will discuss these points.

DR. JAMES G. HUGHES: Two factors produce obstruction at the pylorus:—hypertrophy of the smooth circular muscle and edema of the mucosa. The edema is thought to be due to the irritation of curds of milk being forced through the narrow opening. A presumed third mechanism, spasm of the muscle, is now receiving less emphasis.

The leading symptom of vomiting usually starts in the second or third week, but may begin later or in the first days after birth. The case presented today was somewhat

\*From the Department of Pediatrics, University of Tennessee College of Medicine, Memphis, Tennessee.



unusual in that vomiting was delayed until the fifth week, though I really doubt this because of the greatly depleted condition of the infant upon admission. Since the obstruction is above the ampulla of Vater, the vomitus does not contain bile, a differential diagnostic point of value in ruling out duodenal or lower small bowel obstruction.

At first the vomiting is usually a mere "spitting up," and one may think it due simply to a feeding problem. (However, occasionally a baby with pyloric stenosis starts projectile vomiting rather suddenly, when the breast milk plays out in the first two or three weeks and a milk with a larger curd, which is thought to irritate the mucosa of the narrow pyloric canal, is fed.) Soon vomiting becomes more and more forceful, eventually becoming projectile from the baby's mouth and gushing through his nose. This occurs because the stomach becomes large and strong as it continually strives to force food through the constricted pylorus.

As this big, powerful stomach writhes to force food through the narrow channel it gives rise to another sign of pyloric stenosis, visible peristaltic waves. One sees a mass half the size of a ping-pong ball appear in the left upper quadrant, march slowly down to disappear near the navel, usually just to the right of the midline. At times two waves may be seen at once. Feeding may bring out these waves more noticeably. One should remember that simple pylorospasm may also produce large visible peristaltic waves.

Since so little is going through the stomach, constipation is an almost constant feature—no coal, no ashes. In advanced cases starvation stools may occur, appearing as brownish-green stains on the diaper. Personally, I am wary of making a diagnosis of pyloric stenosis unless the stools are reduced in volume, so constant is constipation.

As the vomiting continues, the baby fails to gain weight, loses steadily and, if the condition is not relieved, shrivels up into an emaciated, dehydrated ghost of a child. If adequate medical attention has been ob-

tained early, one does not see such an advanced state. Due to the great loss of fluids, dehydration becomes severe, tissue turgor is poor and urine output is decreased. Anemia often develops from poor nutrition, and intercurrent infections are fairly common. Initial dehydration may mask this anemia.

Since Dr. Etteldorf will discuss in more detail derangements of fluid and electrolyte balance, I will merely say that alkalosis is frequent and may be severe. Therefore the baby may breathe shallowly and irregularly, with periods of apnea; alkalotic tetany may occur.

Physical examination reveals a baby with varying degrees of the above findings, depending upon how early the child is seen and how well it has been managed. Palpation of the pyloric tumor clinches the diagnosis. It can be felt best just after the child vomits, so it is deliberately fed to cause vomiting while palpation is carried out. Physicians differ in the ability to feel the tumor. Some claim they feel all of them; I am unable to do so. If the tumor is felt, the diagnosis is certain and operation is indicated.

The X-ray examination will be discussed by Dr. Carroll. If the tumor can be palpated, it is not necessary to have X-ray studies, a point which I hope Dr. Jones will discuss.

*Differential Diagnosis.* Conditions to think of in the differential diagnosis are: errors in feeding technique, simple pylorospasm, urinary tract infection, cerebral injury or defect, atresias and partial obstructions of the bowel, and the interesting syndrome of adrenocortical insufficiency of the newborn.

1. *Feeding Technique.* Common errors in feeding technique account for most vomiting in the first month of life. Examples are: failure to "bubble" the baby during and after each feeding, nursing in a horizontal position, using bottles with nipples whose holes are too small, or attempting to breast feed entirely when there is an inadequate amount of milk. All of these factors lead to overdistention of the stomach with swallowed air. Use of formulas which are



not tolerated well by the baby is a fairly frequent cause.

2. *Pylorospasm.* For unknown reasons the pylorus may undergo spasm and prevent egress of food from the stomach. This comes and goes, so that some food does get through. Though the infant with pylorospasm may have projectile vomiting and may even have visible peristaltic waves, he continues to pass one or more stools a day of fairly normal volume, in contrast to the constipation of pyloric stenosis. Furthermore, sedation with phenobarbital, careful use of atropine and perhaps the use of thickened feedings usually produce a happy result, while these measures are generally ineffective in true pyloric stenosis. Also, such a baby often gains in spite of vomiting, or at least does not lose much, while the weight curve of the infant with true pyloric stenosis is decidedly downhill. Of course there is no palpable pyloric tumor in pylorospasm, but the tumor of true pyloric stenosis cannot always be felt. X-ray studies are sometimes needed to differentiate the two conditions.

3. *Urinary Tract Infections.* Infection of the urinary tract, especially where obstructive anomalies exist, may mimic pyloric stenosis by producing much vomiting and weight loss. However, there are usually neither constipation nor visible peristaltic waves, and certainly no palpable pyloric tumor. Urinalyses, urine cultures, and possibly excretory urograms make the diagnosis.

4. *Cerebral Injury or Defect.* Infants who have suffered cerebral injury or have cerebral defects tend to vomit and may stimulate cases of pyloric stenosis. Subdural hematoma should be considered, especially if the fontanel is full and the head is increasing rapidly in size. Naturally the coexistence of neurologic abnormalities, as spasticity, tremors, twitchings, or convulsions with vomiting, point toward the brain as the probable cause of vomiting.

5. *Atresias and Other Obstructions of the Bowel.* Atresias of the duodenum or lower bowel are different by the onset of vomiting in the first day or two of life, the presence of bile in the vomitus, abdominal distention,

plain X-ray film of the abdomen which shows lack of a gas pattern below the complete obstruction and distention above and, if necessary, by Farber test of the meconium which shows no cornified epithelial cells in a stained smear of the meconium. We have not needed to employ Farber's test in any case of atresia, the diagnosis being so obvious on other grounds. Meconium ileus, the obstruction of the newborn's bowel by thick tenacious meconium, is detected by failure to pass a stool and by a plain X-ray film of the abdomen which shows a characteristic appearance. Partial bowel obstruction, as in malnutrition of the colon, is more difficult to diagnose and may require a barium enema to reveal malposition of the cecum.

6. *Adrenocortical Insufficiency of the Newborn.* Interesting cases of adrenocortical insufficiency of the newborn have been described with increasing frequency, and since the condition may mimic pyloric stenosis its consideration is pertinent here. Such infants usually have marked decrease in the salt-and-water hormone of the adrenal cortex, making them unable to retain sodium and chloride, thereby leading to fluid loss through the kidneys. They continue to be dehydrated in spite of repeated efforts to hydrate them. Whenever one cannot produce fluid retention in an infant who keeps on passing large amounts of urine, one must think of this possibility. Excess androgen production, a part of the syndrome, causes diagnostic changes in the genitalia. Female infants have an enlarged clitoris, with a urethral or urogenital sinus opening beneath and are often mistaken for boys with hypospadias. Male infants may have noticeable enlargement of the penis and pigmentation of the scrotum. These infants have vomiting which may be projectile and sometimes are operated upon for presumed pyloric stenosis. They tend to have diarrhea instead of constipation as in pyloric stenosis. They may have visible peristaltic waves. In contradistinction to the infant with pyloric stenosis who has constipation, oliguria and alkalosis, infants with adrenocortical insufficiency tend to have loose stools, have marked polyuria

and acidosis. Detailed chemical tests establish the diagnosis with validity, but one may suspect it strongly at the bedside from the observations mentioned above.

DR. ETTELDORF: In so far as the treatment of pyloric stenosis is concerned, I think we all here agree once the diagnosis is established, the treatment of choice is surgical; thus no time need be spent in discussing medical treatment.

In order to prepare these patients adequately for surgery, one must have a rather clear understanding of the changes which have taken place in the body. These changes found at the time we established the diagnosis depend upon the duration and severity of the vomiting. In some cases, certainly in private practice, when the diagnosis is established early, there will be practically no disturbance in the fluid and electrolyte balance. The  $\text{CO}_2$  combining power in this case did not show the degree of alkalosis which may be encountered in patients who have had prolonged vomiting.

These children lose hydrochloric acid, mucin and a slight amount of sodium and potassium in the gastric juice; therefore there is a chloride deficit with bicarbonate excess, or a picture of alkalosis. The tendency is for the blood pH to become more alkaline or be raised above 7.35. Because of the inability to retain food and fluid, there is also malnutrition, hypoproteinemia and dehydration. Because of the dehydration, anhydremia and hypoproteinemia, these children are oliguric. This patient excreted a small quantity of urine which showed some evidence of impaired renal function shown by albuminuria; the kidneys also are unable to adequately handle phosphates, sulphates, lactic acid and other acids. It is of interest, however, as was true in this case, that patients with pyloric stenosis frequently do not demonstrate ketosis as prominently as do patients in starvation.

The urinary findings are helpful in evaluating these patients, especially in communities where  $\text{CO}_2$  combining power cannot be tested. In a case of prolonged vomiting due to pyloric stenosis, with accumulation of the acid metabolites and oliguria, there

is a tendency for the body to conserve electrolytes for osmotic reasons and the urine, therefore, may be acid in spite of the patient being in a state of alkalosis. This child was admitted to the hospital with a  $\text{CO}_2$  combining content of 68 vol. per cent, a moderate alkalosis, but with an acid urine; therefore, one cannot use the pH of the urine to indicate whether or not alkalosis is present. A useful and simple test to determine whether or not the patient is in alkalosis and therefore properly prepared for surgery from the standpoint of electrolyte balance is a chloride determination on the urine. During alkalosis the urine contains only traces, if any, chloride. On the contrary, the test will be strongly positive when the alkalosis has been adequately treated. This test consists of acidifying the urine with nitric acid and centrifuging the mixture. To the supernatant fluid are added a few drops of 10 per cent silver, nitrate solution; if chlorides are present, a turbid solution will result. It is important that alkalosis be relieved, since all too often such children are sent to the operating room with Cheyne-Stokes respiration and may expire because they are poor subjects for general anesthesia. Therefore, these patients are pediatric rather than surgical emergencies and with proper fluid therapy can be maintained, as in this case, for several days after the diagnosis has been established. Because of the hypoproteinemia of starvation, plasma and or blood are usually necessary.

More specifically in the preoperative treatment, which requires 24 to 48 hours, the patient is evaluated to determine whether or not he is in severe alkalosis either by determining the  $\text{CO}_2$  content or by analyzing the urine for chlorides. Physiologic saline, glucose and plasma are the solutions usually given in the past. Ringer's solution is better than physiological saline because it contains small quantities of potassium. Because of the demonstration by Danowski for the need of potassium, we prepare a solution containing more nearly an adequate quantity of potassium, slightly hypertonic but safe, by adding one gram of potassium chloride to a liter of Ringer's



solution. These patients can safely tolerate from 30 to 40 cc. per pound of this solution subcutaneously per 24 hours. In addition, from 200 to 250 cc. of saline or preferably Ringer's solution per day by hypodermoclysis or intravenously are required to supply adequate chloride to combat the alkalosis.

Glucose is necessary because of glycogen depletion and 20 cc. per pound per 24 hours of a 5 per cent or 10 per cent glucose solution in water in the vein as a slow drip is usually adequate. Glucose in concentrations of 3 to 5 per cent may be added to the other subcutaneous fluids mentioned before. Ten cc. of plasma and or blood per pound of body weight should generally be given to these patients before operation. If the child is in severe alkalosis, signs of hypocalcemic tetany may be present which is treated by administering 0.5 cc. of 10 per cent calcium chloride or gluconate per pound in the vein. One should never give calcium subcutaneously or intramuscularly. Calcium chloride has a slight advantage over calcium gluconate in that it is more acid and also supplies chloride which is in deficit. The use of ammonium chloride to combat alkalosis is seldom necessary.

In our opinion no food should be offered by mouth during the first 12 hours postoperatively. This is a controversial subject, and some recommend that feedings of a weak formula or a protein hydrolysate be offered every 2 or 3 hours soon after the patient reacts from the anesthetic. It has been our observation that early postoperative feeding more frequently resulted in vomiting than when food is withheld for a short period. Except for one-half to an ounce of water at 2- or 3-hour intervals we offer nothing by mouth during the first 12 hours. In the next 12 hours we offer an ounce of 10 per cent glucose in Ringer's solution every 2 hours; if this is retained, we start a weak formula. We recommend a formula giving a small curd with a low fat content in order to facilitate emptying of the stomach. This may be attained by using equal parts of water and skimmed milk with 5 per cent glucose, heated to reduce the size of the curd. Breast milk, if

available, is satisfactory and may be diluted with water. Preparations such as Nutramigen and some of the powdered milks in one-half the recommended strength give satisfactory results. Most milks, if diluted, give a small curd. An ounce is given every 2 hours for the first 24 hours; and if this is retained, the quantity and strength of the formula is gradually increased until the caloric requirements are met. The postoperative course is usually uneventful if surgery has been successful in relieving the obstruction. It is usually necessary to give daily 100 to 200 cc. of glucose solution as an intravenous drip and 100 cc. of saline by clysis during the 48 hours following surgery. Occasionally, 10 cc. of blood or plasma per pound may be required after surgery. These children usually retain their feedings, promptly begin to gain weight and within a relatively short time have all the appearances of a normal child of similar age.

A discussion of the preoperative and postoperative management of an infant with pyloric stenosis would be incomplete if one did not stress the importance of having a small catheter in the stomach before and during operation to keep it empty and deflated; this also reduces the possibilities of aspiration of gastric contents. A cannula should be placed into a vein immediately before operation for giving blood and glucose as needed in emergency. A normal temperature during and after operation requires the use of warm water bottles, etc.

The value of vitamins is obvious, and they may be given parentally, especially during the preoperative period.

DR. DAVID CARROLL: If a patient shows the usual symptomatology of hypertrophic pyloric stenosis, and if a pyloric mass can be palpated, there is little need for X-ray examination. However, when a mass cannot be palpated, X-ray examination is quite important in the differential diagnosis. The case presented today is somewhat unusual from the radiologist's viewpoint in that there was a complete obstruction of the gastric outlet. This was shown in the plain film of the abdomen by marked dilatation of

the stomach with no gas in the gastrointestinal tract beyond the pyloric end of the stomach. A complete obstruction at the gastric outlet in a patient of this age would almost always be due to hypertrophic pyloric stenosis. The technique of examination in suspected cases of this condition is very important. The two most common mistakes are: first, not emptying the stomach before examination, and second, giving too much opaque medium. Our technique is to pass a soft rubber catheter into the stomach and to aspirate residual gastric contents. Then 8 to 10 cc. of an iodized oil are injected and the tube withdrawn. We prefer to use an iodized oil instead of barium because of the danger of vomiting and aspiration. The baby is then placed face down with the left side elevated. This right anterior oblique position accomplishes two things: the pressure of the spine on the cap is removed and the opaque media falls by gravity toward the pyloric end of the stomach.

The first finding noticed is the disturbance in gastric physiology. If the obstruction is partial and has been present only a short period of time, the stomach shows hyperperistalsis. If the obstruction is more severe, there will be alternating periods of hypo- and hyperperistalsis. If the obstruction is very severe, there is marked gastric atony. Sometimes it is necessary to wait 15 to 30 minutes before the opaque media finally enters the duodenal cap. Then it will be noted that the pyloric canal is elongated, very narrow, and characteristically shows twin mucosal lines running parallel through the narrow pylorus. Sometimes one may encounter a small fleck of opaque media at about the middle of the pyloric canal. This represents a small mucosal fold, and is not to be confused with an ulcer crater. The enlarged pyloric muscle causes a crescentic indentation of the base of the cap. We have found this change the most important item in the X-ray examination and have paid little attention to the delay in gastric emptying.

DR. MITCHELL: This is the most frequent condition in the newborn period re-

quiring surgery. Early diagnosis is important. Symptomology is usually plain; and if one remembers the condition, he can at times make a diagnosis before there is any wasting and before there are any severe chemical losses. In the diagnosis the age of onset is perhaps the most important single thing. A few exceptions occur to the usual age of onset of vomiting. We have had a baby delivered here who on the following day began severe vomiting and had other signs of a high intestinal obstruction. We were surprised when he was operated on the evening of the second day of life to find a hypertrophic pyloric stenosis. A Rammstedt operation was performed with no complications and ordinary recovery. At the other extreme, I have had a baby entirely breast fed who did not have symptoms until the third month, when he began to vomit suddenly and severely and a diagnosis of obstruction was made. There again, when the abdomen was opened a simple hypertrophy of the pylorus was found and the patient made the usual recovery.

The suddenness of the onset in a few cases of pyloric stenosis may be explained on the pathologic basis. The pathology consists not only of an hypertrophy of the muscle cells and an increase in the number of cells; there is also an attendant edema of the mucosa which can produce immediate and severe symptoms.

With regard to feeding afterwards, I have done very well with a few feedings of simple water, or glucose water, with breast milk and water half-and-half. Then, by the third day, if the baby does well and is a breast-fed baby, which, unfortunately, most of them are not, I can put them back to the mother's breast. The reason I think most of them are not breast fed is because somebody along the line has been suspicious that the breast milk was at fault and has unfortunately weaned them from the breast and put them on the bottle before they have reached the correct opinion of the case.

We have Dr. Reilly, Professor of Pediatrics, University of Arkansas, with us this morning and extend the privilege of the floor by asking at this point if he has any-



thing to add in regard to this case or the subject in general.

DR. WILLIAM A. REILLY: I am happy that a visit to Memphis coincides with your conference and that you have extended to me the privilege of joining the discussion.

There are several points of interest that I should like to mention. Although the course of pyloric stenosis is usually steadily downhill, a few patients have periods of improvement from time to time, probably because of variations in the degree of edema of the pyloric mucosa. Nowadays, when a diagnosis is made so readily and operation performed so early, one does not usually see this type of case. But if operation has been delayed through failure to diagnose the case, one should not be surprised to see the child improve a little from time to time. However, once the diagnosis is really established, the child is "reconstructed" from the point of view of fluids and electrolytes and then operated upon. We do not believe in so-called medical management of pyloric stenosis except to prepare the patient for surgery.

Palpation of the pyloric tumor completely establishes the diagnosis, but I am unable to palpate them all. If the tumor is felt, X-ray studies are not needed in diagnosis. However, the families of patients are often so "X-ray minded" that they expect such studies to be performed. The tumor can sometimes be felt more easily if distention of the stomach is relieved by gastric lavage just before palpation is performed.

The most important part about operating upon these infants is proper preoperative preparation. Surgery is never an emergency in such cases.

Postoperative Wangenstein suction is not required in the usual case and should be employed for only a limited period of time in those instances in which the surgeon has inadvertently nicked through the mucosa of the duodenum. We have recently had a bitter experience in this regard. A case of markedly advanced pyloric stenosis with severe dehydration and alkalosis was prepared for surgery, operated upon and a large tumor encountered. The duodenum

was nicked and a little bile extruded. In such instances Wangenstein suction is indicated for about two days, and antibiotic therapy, including penicillin and dihydrostreptomycin, is employed to minimize the possibility of peritonitis. The nick in the mucosa usually heals in two days and all goes well. However, in this case the surgeon insisted upon prolongation of the Wangenstein suction for many days, a procedure which seriously depleted the fluid and electrolyte balance of the infant and aggravated an already present starvation situation. The baby died, the result of chemical imbalance and starvation, in my opinion, for the autopsy revealed no abdominal cause for death. This is the only case we have lost in the past three years. It is highly important to remember that small infants do not tolerate prolonged Wangenstein suction well.

DR. ALBERT JONES: I feel like the voice in the wilderness, but I have an urge to stress certain points whenever the subject of pyloric stenosis comes up. I feel that in most of these cases, with a little patience, the tumor can be felt. There are several reasons why that should be stressed. In the first place, we should not forget to use our five senses in trying to diagnose cases. It seems that medicine is getting too laboratory-minded. We should rely more on our physical senses and, whenever it is possible, we should forego unnecessary laboratory work. Two points in regard to feeling the tumor are worth mentioning. One is that if you will watch the peristaltic waves and observe where they disappear this is the place to feel for the tumor. Secondly, I find it helpful if the baby doesn't have any waves, to give him a little water to drink. This will sometimes stimulate peristaltic waves so one can see where they disappear. If the baby vomits, as often happens when water is given, the abdomen is very relaxed and it is easier to feel the tumor. Once you've felt the tumor there is no need for X-ray examination.

Another reason why we should try to make the diagnosis with our physical senses rather than with so much laboratory X-ray

data is the fact that many of the house staff and students who are trained here are going out into areas where X-ray facilities are not available. If they see us always make a diagnosis with the aid of the X-ray, they're going to feel as if it can't be made otherwise. On the other hand, if we have cases diagnosed without X-ray examination, which are operated upon and proven, they will see that the diagnosis can be made clinically and they will have confidence to do the same.

Another thing I think we should always think about, especially now when there is so much hue and cry for socialized medicine, is how to cut down on the cost of medical care. If you put a patient in the hospital and do a great many laboratory studies, the patient will associate his total bill, and not his doctor's bill alone, with the doctor. If we can make a diagnosis on physical examination, let's not make unnecessary X-ray studies. Let's save the patient as much money as we can.

I'd like to make one remark about treatment. I thoroughly agree with what Dr. Etteldorf said about not needing to feed these babies early. It was shown more than ten years ago in experiments on dogs that when the pylorus had been cut there was spasm of the pylorus for a period of 24 hours or more. Anything put into the stomach at such a time just lies there. One reason why we got by with early feedings in the past was that we started off with a dram and slowly increased each feeding. You can see that in 24 hours one would not put much in the stomach by such a method.

When we have preparations like hydase or alidase which permit adequate fluids to be given subcutaneously, I see no reason to start early feedings.

DR. GILBERT J. LEVY: Since atropine sulphate is frequently used in the treatment of pylorospasm and pyloric stenosis, I wish to briefly mention two cases of atropine poisoning.

The first was a case of pylorospasm for which I prescribed one-half grain of atropine sulphate to one ounce of water. This makes one drop, the dose which I prescribed, contain approximately 1/1,000 of a grain. Three hours later I was called to see the infant in a convulsive state. Fortunately, the patient recovered. Examination of the contents of the prescription which was filled by an irresponsible druggist revealed seven times the amount of atropine prescribed. The analysis of this medication was made by Dr. Nash's department at the University of Tennessee.

The second case was one of pyloric stenosis which was operated upon and a week later eviscerated. The second skin closure was done with wired buttons. Through an error by a nurse at the hospital, atropine sulphate 1/15 of a grain was given my patient. Sharp continuous convulsions ensued and the temperature rose to 106 degrees. Strong sedation, cold water enemas and acetylsalicylic acid aided in the recovery of the infant.

It is a good policy when prescribing atropine sulphate to underscore the dosage three times in order to keep the mother aware of overdosage.



## THE JOHN GASTON HOSPITAL CLINICAL PATHOLOGICAL CONFERENCE\*

Memphis, Tenn.

This 3-year-old colored female was admitted to the John Gaston Hospital on March 28, 1949 with complaints of vomiting, rigors, delirium and stupor of six hours duration.

The onset of symptoms was very sudden. The child awakened from a normal sleep and tried to vomit. This was productive of a teacup of mucous-like vomitus, and was accompanied by upper abdominal pain. A rigor and fever appeared; she became delirious and then lapsed into stupor which was marked by grunting respirations. The child had a mild upper respiratory infection for approximately a week prior to admission but had no associated constitutional symptoms. There was no known exposure to communicable disease.

A past history recorded whooping cough at ten months of age, pneumonia a year prior to admission and the passage of pin worms on several occasions prior to the present admission. Family history was non-contributory.

On admission the child was stuporous. She appeared well developed and well nourished. Temperature was 105° F. The right pupil was larger than the left; both reacted to light. There was slow lateral nystagmus of the eyes. The liver was palpable three finger-breadths below the costal margin on the right.

Shortly after admission the child was found to have a left hemiparesis. The reflexes were hyperactive on the right and no reflexes were present on the left. Lumbar puncture was attempted on two occasions without success. Cisternal puncture produced only blood-tinged fluid which was reported as xanthochromic when centrifuged. X-ray of the chest revealed patchy consolidation in both mid-lung fields consistent with broncho-pneumonia.

RBC was 2,020,000, Hgb. less than 7.5 Gms., WBC, 29,300. Blood smear revealed poikilocytosis, with numerous sickle cells, diffuse basophilia. Howell-Jolly bodies, and Cabot rings. There were hypochromic red blood cells; thrombocytes were adequate. Differential, 200 cells counted,—myelocytes 0.5, metamyelocytes 4.0, segmented 31.0, non-segmented 17.0, eosinophiles 8.5, prolymphocytes 0.5, lymphocytes 38.0, monocytes 0.5 per cent. Summary of abnormalities: sickle cells in the peripheral blood with nucleated red cells and other evidence of red cell regeneration; shift to left in the myeloid series with eosinophilia.

Urinalysis revealed:—pH 5.5, amber, turbid; albumin, negative; sugar, negative; 1-2 WBC/hpf with occasional clumps of 4-5 cells; occasional RBC/phf; no casts.

Cerebro-spinal fluid protein was 407 mgm.% and the sugar was 35 mgm.%. Red blood cells were present, and the fluid was described as slightly xanthochromic. (This was obtained on cisternal puncture.) Culture of the spinal fluid was negative.

Six and one-half hours after the onset of symptoms and one and one-half hours after the patient was first seen in the hospital, she developed Cheyne-Stokes type of respiration, and then had respiratory collapse. She was placed in a respirator at the Isolation Hospital but expired shortly afterwards in spite of therapy.

### Discussion of Clinical Findings

DR. JAMES N. ETTELDORF: This case presents a sudden fatal episode in a child who was admitted in a moribund state and died before adequate studies could be carried out. Such sudden fatal episodes are not too rare in the pediatric age group and result in autopsy findings which are frequently most edifying. The lack of sufficient time for observation makes it extremely difficult to diagnose many of these cases, but some of the findings in this patient permit us to consider a number of possibilities and arrive at the most logical diagnosis.

The significant part of the history is that the child comes in with an acute episode and presents central nervous system symptoms. The child has been well nourished and apparently has had proper well-baby clinical care. During the night she became restless, had a fever, vomited and became stuporous.

The first of the possibilities which we should consider as causing the fever, stupor and irritability would be some infectious process of the central nervous system. Meningitis in young children is frequently due to gram-negative bacilli such as the influenza bacillus, *Proteus vulgaris*, *Escherichia coli*, the tubercle bacillus as well as the pneumococcus, and occasionally the staphylococcus and streptococcus. The fluid obtained by lumbar puncture was bloody so that the evaluation of the actual number of white cells present would be most difficult. Such a "bloody tap" in the lumbar spine area may result in subsequent bloody fluid on cisternal puncture. (We have seen one case in which we have obtained a bloody spinal fluid with a traumatic punc-

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ture and then subsequently obtained bloody fluid from a cisternal puncture; that child had a cyst of the septum pellucidum and did not have any actual bleeding into the subarachnoid space prior to the lumbar puncture.) In the present case, even if the lumbar puncture caused traumatic bleeding, if meningitis were present the culture should have been positive. Furthermore, tuberculous meningitis can be excluded to some degree since we have no actual evidence of pulmonary tuberculosis or miliary tuberculosis even though there are some indefinite shadows within the pulmonary tissue upon the roentgenographic examination. Meningitis is a remote possibility. The cerebral spinal fluid protein is, of course, of no diagnostic value with the large amount of blood in the spinal fluid.

Of the encephalitides, the most likely is lead encephalitis. This is especially true in colored children of the charity class of patients who might possibly burn lead batteries as a source of fuel and heat during the winter months. It is always of value to carefully investigate such a possibility. At times a lead encephalitis may flare up as a result of a respiratory tract infection such as a bronchitis or a bronchiolitis with the subsequent acidemia and the sudden release of lead from the bone. With such lead poisoning one might also have the associated anemia, the stupor and even the hemiparesis. We also must consider that a patient with sickle cell anemia or a sickle cell anemia itself might coincidentally have lead encephalitis. We have no positive evidence of lead poisoning with encephalitis in this case.

A central nervous system hemorrhage might not have been produced by a lumbar or cisternal puncture, but might have antedated these procedures and conceivably might have been due to sickle cell anemia with thromboses in certain vessels. Also, we must consider the possibility of the rupture of a congenital aneurysm. Frequently, in children, a cerebral arterial aneurysm may produce a sudden focal lesion, and an equally sudden death.

Brain abscess is usually associated with

fever, convulsion and focal manifestations. But in general it does not have such an abrupt onset as did the clinical condition in this patient. Brain tumors are a possibility but we can dispense with them for serious consideration again by the abrupt course. It is possible to have a hemorrhage into a brain tumor and perhaps with the escape of blood into the subarachnoid space so that it could be obtained by the cisternal or lumbar punctures.

Cerebral edema, apparently due to fever with an upper respiratory infection can be associated with unilateral Jacksonian convulsions and with meningismus. Frequently, the central nervous system symptoms, apparently due to the cerebral edema, result from the high fever through some unknown mechanism. Nearly all of the symptoms of this patient could be due to cerebral edema. The dangers of the cisternal puncture per se may be significant in this patient although the history would indicate otherwise. It might be that the child first had some central nervous system symptoms, either due to cerebral edema or sickle cell anemia, then the lumbar and cisternal punctures, the latter producing local injury to the brain stem with resulting hemorrhage into the subarachnoid space and hemiparesis. This is a possibility as a contributory factor or as the immediate cause of death.

Finally, we arrive at sickle cell anemia with cerebral manifestations. Sickle cell anemia can be likened to syphilis as a great masquerader of symptoms. This is especially true in sickle anemia in children. Abnormal electroencephograms have been observed during investigations in the pediatric department. The symptoms of sickle cell anemia may be referable to the heart, the respiratory system; one must consider it in the diagnosis of abdominal crises, mesenteric lymphadenitis, nephritis, polycystic disease of the kidneys, peptic ulcers, acute rheumatic fever and osteomyelitis. Sickle cell anemia may mimic nearly any pathological condition characterized by a febrile response since a sickle cell crisis itself may be accompanied by fever. As for the mechanism and production of the symptoms in sickle cell crisis or sickle cell anemia, Dr.



Diggs and Dr. Ching have contributed much. The concept is that a thrombotic conglomerated mass of non-rouleauing, non-elastic sickled cells will plug the small capillaries and perhaps even the vasa vasorum of vessels, the latter resulting in local vascular death from the impaired nutrition of the vessel wall. Recently, Kimmelstiehl has considered that a shock-like state is first produced in sickle-cell crisis. This results in the shock and ischemic infarction of certain areas of the viscera. With the vasospasm and vascular congestion of shock, the red cells become anoxic, there is damage to vessel walls and then thrombosis. Thus, the thromboses are the end result and not the initiating factor in this disease process. We might consider that this child has had its first episode of sickle cell crisis. There are two cases in the literature of sickle cell anemia without sickle cell anemia with sudden death associated with acute respiratory infection.

There have been cases of sickle cell anemia reported in infants three and six months of age, and in the literature there are even cases of sickle cell anemia occurring during neonatal life. There are also a number of cases of sickle cell anemia, but not sickle cell anemia, in the first few days after birth. In the particular patient under consideration it would seem as though the anemia without actual jaundice being present or noticed suggests that there has been some previous chronic destruction of erythrocytes and that while we have the crisis there has been no marked destruction of the cells, or sufficient time has not yet elapsed for a marked jaundice to be seen. I should like to emphasize again that the moribund condition of the patient and his short hospitalization prevented a more accurate study and makes it extremely difficult to arrive at a proper diagnosis in this case. While I believe that the sickle cell anemia with cerebral manifestations is the major diagnosis, we cannot exclude some other complicating factor such as rheumatic fever which may coexist with the sickle cell anemia but with which sickle cell anemia is most frequently confused. It would appear to me that the immediate

cause of death was the sickle cell anemia, the mechanism of death in the sickle cell crisis being either an initial capillary thrombosis or perhaps the initial shock ischemia with subsequent thromboses producing the various central nervous system symptoms, the abdominal pain and the vomiting.

DR. SAM H. HAY (Radiologist): Only a single roentgenogram of the chest was made on this patient. There are very minimal parenchymal lesions in both upper lobes and in the right mid-lung field. The remaining portions of the lungs are negative. These findings are interpreted as minimal pneumonitis. The heart, mediastinum, diaphragms and bony thorax are negative. There is slight enlargement of the liver.

DR. LEMUEL W. DIGGS: This patient was studied by the hematology laboratory and a diagnosis of sickle cell anemia made on the basis of stained blood smear, evidences of red cell regeneration, leukocytosis and thrombocytosis. Regardless of what else the patient may have, I am sure she had sickle cell anemia. The presence of typical elongated and double pointed and bent erythrocytes in the air-exposed smear occurs only in true sickle cell anemia and not in the sickle cell trait without anemia or in anemia due to some other cause. Usually, patients with sickle cell anemia are jaundiced, but the absence of jaundice here may be due to the fact that the child was severely anemic and there were not enough red cells being destroyed to furnish the pigment to make the plasma and tissues discolored enough to be clinically noted. The high white cell count and the presence of early neutrophils, basophiles and eosinophiles, together with the anemia and young red cells might suggest leukemia, but there was no evidence of enlargement of the lymph nodes or spleen. All of the symptoms and signs referable to the central nervous system which are described could be explained by sickle cell anemia. Usually, the spinal fluid is not bloody in this disease. The possibility of needle trauma must be entertained.

The eosinophilia, together with the finding of pin worms in the stool suggest the possibility of worms such as ascaris, hook

worm, strongyloides or trichinae which might produce some of the pulmonary and central nervous system findings. Little pigs have a disease known as the "thumps," said to be due to systemic infection with ascaris and the production of pneumonic lesions as the larva pass out of the blood stream into the bronchioles. Parasites during their systemic phase may also cause various cerebral signs.

QUESTION: What is the difference between sickleemia and sickle cell anemia?

DR. DIGGS: In the sickle cell trait without anemia (sickleemia), the air-exposed blood smear does not show sickled cells. It is necessary in order to demonstrate the condition to make a sealed, moist preparation and to examine the red cells under relatively anoxic conditions. The red cells of a patient with the sickle cell trait will, in a sealed, moist preparation, change from biconcave discs and spherical shapes to multipointed bizarre forms, characteristic of this congenital abnormality. In sickle cell anemia it is probable that some of the erythrocytes undergo sickling in vivo. The cells remain sickled for some time in the body, become partially disintegrated and lose the ability to return to the spherical shape when exposed to the air; in other words, they become irreparably sickled.

Approximately one in 8 to 10 colored people have the sickle cell trait. Most of these people are not incapacitated in any known way by the peculiarity of their blood cells, are not anemic, are not jaundiced, have normal looking blood smears and do not have febrile episodes and severe pains such as patients with sickle cell anemia have. Sickle cell anemia always develops in the group of those who inherit the sickle cell trait. It has been proposed that a given person has sickle cell anemia if he inherits the condition from both parents, whereas, if only one parent has the trait, sickle cell anemia does not develop. Further studies are needed to prove the inheritance of sickle cell anemia.

Dr. Etteldorf's Diagnosis: Sickle Cell Anemia with Central Nervous System Manifestations.

Pathological Diagnosis: 1. Pulmonary Granulomas, Parasitic (?) (Loeffler's Syndrome). 2. Sickle Cell Anemia with Crisis.

#### Discussion of Pathological Findings

DR. RUSSELL JONES: This case presents pulmonary granulomas, and a sickle cell crisis.

Let us first consider the morphological changes of the sickle cell crisis. The brain showed no areas of demonstrable infarction but many of the capillaries were distended by sickle erythrocytes and the Virchow-Robin spaces and the spaces about many cortical ganglion cells are prominent; this is suggestive of cerebral edema. Some macrophages laden with ochre-colored pigment are seen about some of the meningeal cerebral cortical vessels. Therefore, it would appear that we have had one episode of hemorrhage prior to this more recent evidence of bleeding into the spinal canal. At the time of the autopsy only a little blood tinging of spinal fluid was observable. There are some small hemorrhages in the Virchow-Robin spaces but these generally are not too prominent. Many of the immature leukocytes can be seen within some of the vessels of the brain as well as throughout vessels in the other organs. The dark red liver was somewhat enlarged in size and in the portal areas of the hepatic lobules we see, upon microscopic study, a marked distention of the sinusoids and packed sickled erythrocytes. Nearly all of the erythrocytes are of the sickled type. There is no true thrombosis. There is no marked prominence of Kupffer cells, although they are readily discernible along the sinusoids and there is no apparent increase of pigment within the hepatic cord cells, but the bile canaliculi are fairly prominent by their altered coloration and not by any increased size. The spleen is of about the usual size but shows considerable congestion of its pulp. There is one interesting feature and that is the basophilic staining of many of the individual collagen fibers of the splenic septa. This is not uncommonly observed in sickle cell anemia in more advanced stages. I do not recall having seen it in a child of this age with sickle



cell anemia, however. There are no areas of fibrosis within the splenic pulp or changes in the malpighian bodies.

The kidneys are not altered in their size or shape but on microscopic examination we find a marked congestion of the vessels, especially the small arteries, the arterioles and the capillaries of the glomerular tufts. Again, the sickled erythrocytes can be very well seen, especially with the phosphotungstic acid-hematoxylin stains. There appear to be no tubular alterations. There are some unusually prominent endothelial cells in certain portions of the glomerular tufts, but in general, there appears to have been no obstruction of the capillaries other than by the presence of the erythrocytes within their lumina.

In the lungs there is not the congestion of the vessels by sickled cells as noted in the brain, liver, spleen, and kidneys. However, there are a great number of small granulomatous lesions scattered throughout the pulmonary tissue. These have a variation from marked eosinophilic infiltration to areas of necrosis, as well as marked fibroblastic proliferation, collagen deposition and giant cell formation. Some of the milder lesions have an infiltration of plasma cells, some polymorphonuclear leukocytes and a few eosinophiles about unaltered bronchioles. The more marked lesions have a central eosinophilic area of necrosis in which some remnants of polymorphonuclear and mononuclear leukocytes may be seen. Sometimes small thin-walled vessels containing still intact erythrocytes, both sickled and nonsickled, may be observed. Thus, there is a fairly recent necrosis involving an area of exudation and vascular engorgement. About this, there will be fairly abundant proliferation of connective tissue containing many thin-walled vessels, frequently engorged by sickled erythrocytes. About this, and in such areas of connective tissue formation, there are also seen many giant cells. The lesions, little "granulomas" in general, occupy the approximate site of the bronchioles or bronchi; there are no remnants of cartilage or other evidences of the bron-

chial wall. The vessels frequently show marked changes but none of these changes may be described as necrosis. Generally, there is proliferation of endothelial cells and sometimes a mass of organizing material occupies most of the vascular lumina. This, however, is thought not to play a primary role but is merely a concomitant alterative change in the area of granulomatous response. The most peripheral portions of such granulomas fade gradually into the alveolar walls which are thickened and infiltrated by various leukocytes. Occasionally, one of these small peripheral blood vessels will show many little eosinophils within and circling its wall.

One of the most interesting aspects of these granulomas is the presence within the giant cells of wavy little bands of clear refractile material in hematoxylin-eosin stain, which assume a bluish and more distinctive appearance with phosphotungstate acid-hematoxylin. Sometimes these little wavy bands have a parallel arrangement one to the other and are generally within giant cells although rarely they lie parallel to collagen. They are 50-100 microns in length. It is estimated that their sites are near the previous site of the now destroyed bronchus. The structures may represent aspirated material or something that has come along lymphatics or larger pulmonary vessels and found its way into the peribronchial tissue setting up the reaction which we see. The lymph nodes of the tracheo-bronchial area show no important changes although one had typical caseous lesion of tuberculosis. No evidence of tuberculosis was seen in the microsections of the pulmonary tissue.

The presence of the pinworms in the stool does suggest that some other parasitic infestation might have occurred in this child. A check on the stools of this child's siblings and parents were to no avail, but we still must consider the so-called eosinophilic granulomas as probably due to the passage of some parasite, larval or otherwise, through the pulmonary tissues.

The role of allergy in the Loeffler's syndrome has been commented upon many times. It is probable, that as a patho-

genetic concept, the introduction of most protein materials into the body produces not only a tissue reactivity, but something termed allergy or sensitivity. The eosinophilia present in this child, although possibly due to the sickle cell anemia, is also suggestive of a parasitic infestation with an allergic response. Thus, we might conceive of these small larvae passing through the lungs at one or more stages, giving rise to some symptoms interpreted clinically as upper respiratory infection. The subsequent passages of these organisms through the child's lungs could have produced a further allergic response with necrosis in areas of the granulomas.

There is no doubt that the child had sickle anemia and that she probably had some episodes of blood destruction or a continuous blood destruction for sometime prior to the development of the lesions within the pulmonary tissue. The presence of the sickle cell crisis as the immediate cause of death seems to be the logical conclusion. We, therefore, should attempt to bring together some relationship between these two processes and present two queries: (1) could the anoxemia due to impaired aeration of blood by many small pulmonary lesions lead to a state favorable for the precipitation of a sickle cell crisis, or (2) is it possible that the sickle cell crisis in some mysterious way can be precipitated by some alteration in the body metabolism such as a reaction of allergy or sensitization to certain proteins. Certainly, the general question of the actual precipitation of sickle cell crises is far from being solved. The apparent anoxemia is a most attractive theory but we also know there are many other substances which can be used to produce the sickling of erythrocytes in vitro, although we must admit that the property of sickling resides within the cells alone.

DR. ETTELDORF: In my discussion I have failed to give sufficient weight to the presence of pinworms and the eosinophilia. It is quite possible that this child had an ascaris infection with the dissemination of larval parasites as already suggested.

Photomicrographs have already demonstrated that there is a marked engorgement of the hepatic sinusoids as well as the spleen in the early stages of sickle cell anemia. This, of course, would produce enlargement of these organs. Furthermore, the abdominal distention and even ileus could result from the vascular obstruction to the bowel.

DR. DIGGS: I would like to emphasize that the granulomas within the lungs have no pathological association with the sickle cell anemia. The parasites presumably set up the reaction within the lung and then disappear so that the parasites could not be found in the microsections.

DR. HAY: The pulmonary lesions as described by Loeffler may be unilateral or bilateral, small or large, and either single or multiple. The only characteristic findings of the "soft" shadows in their fleeting and transitory nature. Areas of pathology fade in one location and appear elsewhere in the lung.

The syndrome is not well understood and efforts to establish etiological factors and pathological findings are to be commended. Pulmonary infiltrations with eosinophilia have been described in patients with allergic manifestations, especially asthma; also reports of such findings in patients with *ascaris lumbricoides*, *endameba histolytica*, *strongyloides*, and trichinosis infestations are described. Most cases never have a proven etiology. In the case under discussion today, a diagnosis of Loeffler's syndrome is not warranted from the radiological point of view, since we have only one roentgenogram and no characteristic findings. There are no changes in the chest attributable to the sickle cell anemia.

DR. JONES: The pathological descriptions of Loeffler's syndrome are not overly abundant. Von Meyendburg reported the autopsies on four cases with so-called Loeffler's syndrome and found focal areas of pneumonia with an exudate of largely an eosinophilic type. One of the cases showed some evidence of beginning organization of exudate. There were also perivascular and interstitial lesions and in one instance a necrotic focus in the pneumonia



was seen. There were some thrombi in the septal veins but none of the veins were completely obstructed. Eosinophilic leukocytic infiltration was also found in many other organs such as the bone and the liver. He felt that Loeffler's disease really consisted of multiple exudative foci of eosinophilic pneumonias. Harkavy also reported four autopsies in which there were many eosinophils and lymphocytes as well as edema in the alveolar septa. There were some areas of infarction, atelectasis and emphysema. The changes in the bronchi were thought to be those usually associated with asthma. The most interesting feature, the blood vessels, varied from the simple thickening of the walls to an acute arteritis with periarterial eosinophilic infiltration and endarteritis obliterans. Periarteritis nodosa was diagnosed in two of his cases. Bagenstoss described scattered tubercle-like granulomas and in some areas there was organization of alveolar exudate and a more recent inflammatory exudate was found in the lower lobe in which there was a predominance of eosinophils. There were also

perivascular inflammatory reactions, thickening, occlusion and occasional necrosis of vessels.

Our case resembled the latter's, although his little tubercle-like granulomas in no way should be confused with the giant cells and the fibroblasts described in this case. The most unusual feature is the presence of little wavy, hyaline-like structures which conceivably could be some shedded or remnant of a chitin-like sheath of some larval stage of a parasite. The longest structure was not over a hundred microns. From the lesions which we find within the lung, we can see that there could be little patchy areas of atelectasis from a bronchial obstruction and peribronchial reaction as well as small individual foci which would heal over a considerable interval of time. Also in some areas we see alveolar exudate and actual organization of the alveolar exudate. Thus, we could have some lesions in the lung which could be of the so-called fleeting type and disappear in from minutes to hours while other lesions would disappear only after a period of weeks.

# President's Message

## NEW YEAR THOUGHTS



DR. MONGER

As we enter upon a New Year we each receive a most wonderful gift. The gift is a package of time. In this package we find 365 days, 8,760 hours, or 525,600 minutes.

This gift to us should be treasured as our most precious possession, but there is nothing we can do to preserve it for the future. It must be opened and used a little each day.

We cannot concern ourselves too much with the unopened portion of our package, and certainly we cannot be troubled over whatever part of the time allotted us for the year is used as we go along. We must concentrate each day on what that day means to us.

Today is all we can really know about. It is ours to enjoy and put to use. Yesterday is past and gone forever. Tomorrow may never arrive. Today is here now and belongs to us.

Today is the time to do all those things which we have intended to accomplish. We cannot expect to achieve all our hopes and aspirations in a single day, but we can use this day to set ourselves along the proper path of our good intentions.

At the turn of the year, when the old year dies and the new year begins, it has been a long-standing custom to make resolutions for our good behavior during the coming

year. These are usually of a personal and selfish nature. We resolve not to eat so much or not to smoke so much or to make more money for ourselves or find happiness where we have before found only discontent and dissatisfaction.

We should resolve this year to attend our local medical societies regularly, to exchange ideas with our colleagues so that we can be better doctors, and by doing this our patients can receive better care. Also this year our resolutions should call for something bigger and less personal and selfish. This year we must resolve to make the sacrifices necessary for the peace and security of the world. Our nation has undertaken a difficult and expensive responsibility to join with other free nations of the world to stop aggression and put an end to threats and dangers which have been coming from Communistic sources. Such threats and dangers may be blocked if we are strong enough in our armed forces and willing at home to make the sacrifices required to meet these dangers. As we go into the new year we should resolve to meet the tests that this new year requires of us.

I wish each member of the Tennessee State Medical Association a Happy and Prosperous New Year.

*Ralph H. Monger M.D.*

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JANUARY, 1951

## EDITORIAL

### ARTERIOSCLEROSIS

The complications of this condition are the most common causes of disability and death; the results of these vascular changes in the heart, the brain and kidneys are laid before the physician in his daily practice. Yet, little is known about the mechanism of the production of arteriosclerosis. Interest has been stirred in this field, however, and we can hope for a clarification of questions which may ultimately provide the outline for prevention and treatment. Intensive attack upon the problem of arteriosclerosis had to await the pressing problem of an aging population, and newer biochemical methods applicable to nutritional studies, including the use of radioactive isotopes.

An understanding of arteriosclerosis does not necessarily mean that the solution of growing old will be solved. It is probable that the aging process is unrelated to arteriosclerosis though this latter may speed up the former. The living cell may be considered to be immortal if given the proper environment. Connective tissue from old ani-

mals cultured in embryonic tissue fluid carry on the physiologic function of these special cells. The aging process seems to depend not upon cellular change so much as upon the intercellular colloids and the physicochemical changes which occur in them. The intercellular colloids become granular, giving a coarser appearance, and fragmentation of the elastic fibres take place. This is the aging process typified by medial sclerosis and loss of arterial elasticity, separate from arteriosclerosis but no doubt influenced by the infiltration of the lipid substances into the arterial wall, since thereby nutrition to the tissues is impaired.

This aging process is thus a fundamental process for which at the moment there is no answer or even thought of prevention. Current interest in arteriosclerosis is related rather to the effects of lipoids and their deposition in arterial walls. Experimental and clinical information is accumulating, much of it controversial, and so far little of practical value certainly from a curative viewpoint and even little from a preventive aspect. A large volume of literature is being built up relative to cholesterol metabolism and its possible relationship to arteriosclerosis.

The interest in a possible relationship between cholesterol and arteriosclerosis dates back two or three decades because of the known hypercholesterolemia in diseases attended by arteriosclerosis such as myxedema, nephrosis and diabetes. Experimental production of atherosclerosis by the feeding of cholesterol has long been known to occur in rabbits. More recently the same results have been obtained in guinea pigs, chickens and dogs,—the latter the only omnivorous mammal, as is true in man. (The cholesterol induced lesions in herbivorous animals always raises a question as to whether results may be related to man.) In the young dog thyroid function must be depressed by thiouracil in order to produce arteriosclerosis by hypercholesterolemia.

Cholesterol is derived from food intake of animal fats, as in milk, butter, cheese, egg yolks, brain and liver. However, an endogenous source of cholesterol plays a part in the picture. It can be synthesized readily



within the body from acetate (shown by the use of radioactive isotopes). Thus fatty acids and some of the amino acids offer the precursors for the synthesis of cholesterol. The control or prevention of hypercholesterolemia is not therefore dependent necessarily upon simple restriction of intake. Furthermore, in human beings, it is known that arteriosclerosis may take place in the presence of normal levels of blood cholesterol.

In addition to hypercholesterolemia there are other factors which may play a part in the pathogenesis of arteriosclerosis.

Though the adventitia and outer portion of the media receive their nutrition from the vasa vasorum, the intima and inner part of the media are nourished by diffusion through the endothelial lining from the blood stream. Lipoids as well as electrolytes and dextrose filter into the subintimal spaces. The blood pressure provides a high filtering pressure and thus probably accounts for the deposition of cholesterol and development of arteriosclerosis in the aorta and larger vessels.<sup>1</sup> (The association of arteriosclerosis with hypertension is an everyday clinical observation.) Pressure relationships have been called upon to explain the greater frequency of arteriosclerosis of the left anterior descending coronary artery than in the other coronary arteries and their branches. Arteriosclerosis in the lower extremities and in that portion of the aorta and of other arteries in apposition to bony structures is possibly a reflection of filtration pressure relationships accounting for lipid deposits.

The permeability of the intimal cells also is probably a factor in the filtration and deposit of lipoids. Little is known of metabolic changes which alter permeability. One disease outstandingly associated with arteriosclerosis is myxedema; here is probably an example of altered permeability. Certain drugs and chemicals decrease permeability and when used in animals prevent or decrease experimental arteriosclerosis.

The factors influencing the deposit of

cholesterol in atheromatous areas are not well understood. The lipids of plasma also are present in these areas. Both serum protein\* and lecithin may be important, according to some studies, in the transport of cholesterol through the intima and its precipitation in the subintimal tissue. The lecithin relationship may be implied by the findings of Morrison and his collaborators<sup>2</sup> that the ratio of serum phospholipids to cholesterol is 1:1 to 1+ in normal persons, whereas it is 1:-1 in those with active coronary arteriosclerosis. Other studies by Moreton<sup>3</sup> and Becker and his associates<sup>4</sup> relate the size of the plasma chylomicrons to arteriosclerosis.

Attempts at preventing or influencing arteriosclerosis have been along several paths, mainly upon the basis of reasoning and experimental work. Decreasing ingested cholesterol has shown little effect. The reduction of fat in the diet decreases absorption of cholesterol and reduces the precursors for endogenous cholesterol synthesis. Various chemical attacks have been applied experimentally to render cholesterol nonabsorbable from the intestinal tract or to prevent its absorption by physical barriers.

Lipotropic agents such as choline and inositol, though apparently effective in animal experiments, have not been shown to affect consistently the cholesterol level of the blood.

The subject of hypercholesterolemia as possibly related to arteriosclerosis is an intriguing one. Surely the statistical studies showing abnormally high serum cholesterol levels in the presence of coronary artery disease<sup>5</sup> cannot be dismissed as merely coincidental. Yet whether this item is causa-

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\*Your editor unsuccessfully attempted to produce arteriosclerosis in rats by a protein-poor diet plus cholesterol. (Unpublished data, 1940.)

<sup>2</sup>Morrison, L. M., Gonzalez, P., and Wolfson, E., The Phospholipid Cholesterol Ratio as a Test for Atherosclerosis, *Circulation*, 2: 472, 1950.

<sup>3</sup>Moreton, J. R., Physical State of Lipids and Foreign Substances Producing Atherosclerosis, *Science*, 107: 371, 1948.

<sup>4</sup>Becker, G. U., Meyer, J. Necheles, H., See WHAT'S NEW IN MEDICINE, *J. Tenn. M. A.*, 43: 296, 1950.

<sup>5</sup>Gertler, M. M., Garn, S. M., and Bland, E. F. See Abstract, *J. Tenn. M. A.*, 43: 404, 1950.

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Gubner, R., and Ungerleider, H. E., Arteriosclerosis: A Statement of the Problem, *Am. J. Med.*, 6:60, 1949.

tive or whether it is a quantitation of another or multiple other factors cannot be answered at this time. But the answer may well be forthcoming within the next few years. Then methods of preventing or delaying arteriosclerosis may become rational.

R. H. K.

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*Since Tennessee has had its first Industrial Health Conference, the Chairman of the Committee on Industrial Health of the Tennessee State Medical Association was asked to write a guest editorial.—Editor.*

#### MEDICINE IN INDUSTRY

Launched under a triple-association sponsorship, the first Tennessee Industrial Health Conference was held in Nashville, December 7th and 8th, 1950. In symposium format, the Tennessee State Medical Association, the Tennessee Section of the American Industrial Hygiene Association, and the Tennessee Department of Public Health cooperated in the presentation of two subjects for discussion: (1) Can Medicine in Industry Meet the Needs of the American Worker? and (2) The Services Available for a Health and Medical Program in Industry.

As co-sponsors, the Tennessee Farm Bureau, the Tennessee Hospital Association, the Tennessee Manufacturers Association, the Congress of Industrial Organizations, the American Federation of Labor, and the Tennessee State Nurses Association joined in outlining the current views of state and national leaders on the advantages of a well planned medical program in industry.

All agencies expressed with sincerity the desire to see a better health status,—a more fixed health economy,—accrue to the worker in American industry. Differing opinions appeared, however, as to methodology, organizational pattern, and responsibility in developing a program. Free discussion allowed a transfer of ideas between labor and management, public health and industrial health, and private and organized medicine, so that privately held but heretofore publicly unexpressed beliefs came to light.

Several facts became evident during the

Conference. The sparse attendance bespoke a general lack of interest, and a lack of understanding of the goals of industrial medicine, by the medical practitioner outside the plant areas. It is the employed personnel in the manufacturing establishments, in the public utilities and services and in the research organizations that comprise the patients appearing in the private consultation rooms. Yet, beyond a desultory notation of the sick person's occupation on the clinical record, usually in a most general single word, little is known of the manner of living of that patient during his eight-hour day at work.

The problem of providing preventive medical services to the small plant is one recognized by organized labor and by medicine, but the answer still is forthcoming. The necessity for more extensive programs in human relations and mental hygiene has been emphasized, but the full or even partial participation of psychiatrists, industrial physicians, and personnel managers is yet to be witnessed. Unresolved situations of suspicion between management, the financial supporters of the medical programs, and labor, the recipients of the services, exist because both sides have been negligent,—labor for not investigating and learning what does exist medically in many installations, and management for not effecting a total two-way communication through the channels of business organization. To the worker, health protection spells "Labor Department," while to the medical personnel the logical agency is the health department.

In spite of these widely divergent stands by various interested agencies, the Conference learned that services are available through the American Medical Association, the National Association of Manufacturers, the United States Public Health Service, the American Association of Industrial Physicians and Surgeons, and the American Association of Industrial Nurses, all of which can aid in the design, establishment and review of health service facilities at the scene of work. Consultation of all types and at all levels—national, state, county and municipal—is readily obtained to bring to the industrial employee case-finding pro-



cedures, occupational health hazard detection methods and emergency medical care schemes that can make him a safer worker in a safer environment.

Characterizing the Conference was the outstanding feature that the industrial health personnel was "talking to itself." Meetings of this type frequently lead to inbreeding unless there is an injection of new intellectual blood from without the ranks. The increase in defense production, the return to the assembly lines of the disaffiliated hand at the drill press, the re-entry of the aged but able craftsman and the initiation of labor of unseasoned youth will demand the participation of the consulting internist, surgeon, orthopedist, psychiatrist and geriatrician. Theirs will be the task to estimate physiologic age, the physical fitness than can "take" a job, so frequently at variance with chronologic age.

This first Tennessee meeting on industrial health, in spite of the eccentric behavior of the weather, did permit the answering of the question stated previously,—medicine in industry can meet the needs of the American worker when the program is "soundly conceived and adequately executed." On this premise all who came to listen agreed. That this opinion will be shared by all whose professional activities will carry them sooner or later into the plants of America is our devout hope.

JEAN S. FELTON, M.D., *Chairman,*  
*Committee on Industrial Health.*



#### A.M.A. PUBLIC RELATIONS MEETING

The third annual session devoted to this subject was held on the two days preceding the Clinical Session of the A.M.A. in Cleveland. The activities of the county medical societies for the betterment of relationships between the public and the medical profession was the burden of this assembly. Interest in smoothing out the differences between the public and the doctors is shown by the attendance of 400 officers of county and state medical societies.

Your Executive Secretary will report on certain of the topics which aroused discussion and controversy. Your editor should

like to confine himself to several items which concern us all as individuals. It appears that the vast majority of complaints against the doctor by the public at large number only two. These are: (1) exorbitant fees by a few physicians, and (2) inability to obtain a physician in an emergency,—night calls and the like.

The exorbitant fees of a single irresponsible (in terms of the profession and the public) physician, when noised about in a community, cause a reaction unfortunately not counter-balanced by the many services rendered at reasonable fee levels. However, as a result of "grievance committees" experiences it appears that most complaints about high fees result from misunderstandings. When the complainant learns that the total bill includes certain laboratory and other ancillary charges, he often is satisfied and realizes that the physician's personal "take" is reasonable. It was repeatedly pointed out at the conference that if physicians would discuss at the first visit, especially with new patients, the probable costs of diagnostic study or treatment, most misunderstandings would not develop.

The second common complaint,—inability of citizens to procure a doctor,—is a problem which must be worked out within the organization of the medical society. This implies a system whereby doctors will be available for night calls or holiday calls both for old patients and new. Many county societies are taking the responsibility for a system to meet this need. It will require the cooperation of the younger group of practitioners especially, and they must accept this responsibility as doctors. A number of county societies constantly advertise emergency service in the newspapers and from their experience strongly recommend such publicity.

To meet these complaints of the public against the medical profession, "grievance committees" have been established by 34 of 48 state medical societies and in a large and increasing number of county societies. The establishment and publicizing of such committees does not seem to invite complaints,—at least such seems to be the experience of those reporting on them.



Another interesting development in some county societies, to combat complaints, is the acceptance of young applicants for membership on a probationary period of a year or so. During this time they are expected to attend the meetings of the society and are subjected to varying plans directed to inculcate the ethics, duties and responsibilities attendant upon the person having an M.D. degree. Such a plan is highly recommended by some societies to meet the two major complaints mentioned above.

It is your editor's feeling that it is fortunate that no more serious faults are attributed to the medical profession. Both can be met. They have developed more as the result of the complexities of modern life rather than of any fundamental change in the philosophy of the man who at heart is a doctor in all that the term implies. Efforts should be made to enroll every doctor in the community in the local medical society. In this way the maverick practitioner can more easily be controlled. A dubious act by such a one can easily outweigh the numerous acceptable and expected contributions of all the physicians in the community.

If every physician were to act in such a way as to avoid either of the two major criticisms levelled at doctors as individuals, pressure groups would have no ammunition for their attempt to shackle the medical profession.

R. H. K.



#### A GOOD RECORD

The recent amendment to the By-Laws of the AMA which provides that the number of delegates from the fifty-three state and territorial associations will be based upon the number of active, dues-paying members has created considerable concern.

As of December 1, 1950, the national average for all the constituent associations of the AMA with reference to the number of their members paying AMA dues was 70 per cent.

It is apparent that unless this percentage is substantially increased during 1951, the various state associations stand to lose 30 per cent of their elected delegates. The

payment of AMA dues from state to state during 1950 has been spotted. A few states have reported percentages in excess of 90, while some states have embarrassingly reported less than 50 per cent.

The record in Tennessee is a source of pride from two points of view: (1) 1,673 physicians in Tennessee have paid AMA dues because they want to support the activities of the AMA, and (2) they have paid voluntarily. When it is recalled that several states have made the payment of AMA dues compulsory upon their members and have not achieved a substantially greater percentage of payments than Tennessee, our record is all the more commendable.

As of December 31, 1950, our Association had 1,953 active, dues-paying members. Of this number 1,673 paid AMA dues. This is a percentage performance of 86. We can expect our final score to approximate 90 per cent because every member of this Association who has not paid his 1950 AMA dues will be so notified by the Secretary of the AMA and will be given the month of January, 1951, as a period of grace. It is sincerely hoped that every physician receiving this notice will pay his 1950 AMA dues within the grace period.

Just as the record is spotty with respect to the fifty-three constituent associations of the AMA, so the record is spotty in Tennessee. Of the forty-eight local societies comprising the Tennessee State Medical Association, nineteen have come through 100 per cent with AMA dues. Furthermore, of the forty-eight local societies, thirty-two have a score of 90 per cent or better. Top laurels, percentage-wise, go to the Maury County Medical Society, since it is the largest society which has a 100 per cent record. The 20 physicians in Columbia, Mount Pleasant and Spring Hill deserve our congratulations.

On the other side of the ledger we must report, in fairness, that four societies with a total membership of twenty-six physicians have a score of zero with respect to AMA dues.

The record among the five largest societies shows that the Consolidated Medical Assembly of West Tennessee has the best

percentage, namely, 98.49 per cent. This society is followed very closely by the Chattanooga-Hamilton County Medical Society with a percentage of 95.1. The Nashville Academy of Medicine and Davidson County Medical Society has a score of 90.2 per cent. The Memphis and Shelby County Medical Society is fourth with 83.7 per cent, while the Knoxville Academy of Medicine has a score of 59.5 per cent.

Is it too much to hope that the Tennessee State Medical Association will be able to report next December that at least 2,001 members have paid their 1951 AMA dues? Unless we can, we will lose one of our three delegates to the House of Delegates of the AMA.

V. O. F.

(Your attention is called to a statistical report of the AMA dues-paying record of all local societies on page 40 under the heading "PROGRAMS AND NEWS OF MEDICAL SOCIETIES.")

## WHAT'S NEW IN MEDICINE

### The Effects of Radioactive Phosphorus as Internal Radiation in Mice

Radioactive phosphorus was used as continuous medication in varying dosage in the experimental animals.

Warren, June McMillan and Dixon (Radiology, 55:375, 1950) demonstrated that the thymus seemed to be the most sensitive to radioactivity, showing the earliest change, though it returned to its normal state more rapidly than any other tissue. The spleen and bone marrow showed equal sensitivity though the latter was more nearly destroyed than the tissue of the spleen. Both these tissues show reparative changes by two weeks, the spleen becoming hyperplastic by the end of the third week. The bone marrow does not show hyperplasia until a later date. Hyperplasia, lymphopoiesis and myelopoiesis occur in thymus, spleen and bone marrow. The lymph nodes are the slowest to recover from irradiation, remaining smaller and permanently changed. In some animals, even though dying of radiation injury, repair of dam-

aged tissues had been so complete that they approached the normal.

★

### Effect of ACTH in Pneumonia

This study was undertaken for the sole purpose of studying the effect of the hormone upon immunologic processes. The experiment was directed toward a study of the effect of ACTH on the clinical manifestations, bacteriologic flora and serologic responses in three instances of pneumococcal and in two of viral pneumonia. (Koss, E. H., Ingbar, S. H., and Finland, M., Ann. Int. Med., 33:1081, 1950.)

In all five instances a prompt remission of clinical symptoms occurred. The patients having pneumococcal pneumonia continued to have these organisms in the sputum after the temperature reached normal. In one having bacteremia, blood cultures were positive at 12 and 36 hours after the patient was well clinically. One patient had rusty sputum first after he was afebrile; this continued for 5 days. Pneumococci counts in this sputum before and after treatment were essentially the same, then slowly diminished. They were not phagocytosed by leukocytes.

ACTH has an antipyretic effect. In two patients fever reappeared in some days while on the hormone, to disappear again with increased dosage. One patient developed empyema. One of the patients having viral pneumonia developed herpes simplex while on ACTH. Clearing of chest occurred in all cases except the one with empyema.

Antibodies appeared in the pneumococcal pneumonia cases at a time comparable to that in cases ending spontaneously. Cold agglutinins appeared at the expected time in viral pneumonia.

It appears that ACTH may cause profound changes in the clinical picture in acute infections without producing any effect on the infectious agent. The hormone is "not to be considered an effective form of therapy for bacterial or viral pneumonias comparable to specific antibiotics or chemotherapy."

★

### Neomycin

This antibiotic derived from one of the



strains of streptomycetes was described in 1949. It was found to be effective against a variety of gram negative and positive organisms.

Waisbren and Spink (Ann. Int. Med., 33: 1099, 1950) report on the use of this antibiotic in 63 patients ranging in age from 9 months to 93 years. Infections due to a wide variety of organisms were treated, most of them being urinary tract infections, especially those due to gram negative bacteria.

Seven cases of pulmonary tuberculosis were included in the cases studied—three had a miliary spread, two had meningitis, one tuberculous empyema and one a draining sinus. None of the seven instances of tuberculosis responded to neomycin, though in four of these streptomycin and promizole also did not change the course of the disease. It appears that there is less likelihood of tubercle bacilli becoming resistant to neomycin than to streptomycin.

Neomycin was found to be very effective against *Proteus vulgaris*, sterilizing the urine in the majority of instances. Most of these were cases in which aureomycin had been used for urinary tract infection without any effect whatsoever upon the *Proteus vulgaris* present. Similarly neomycin was shown to be effective against *Pseudomonas aeruginosa* in the urinary tract. Neither organism became neomycin-resistant.

This antibiotic is nephrotoxic, causing in some patients albuminuria and granular casts which clear up in several days after cessation of the therapy. In 5 of the 63 patients treated there was a toxic effect upon the auditory portion of the eighth nerve; subsequent audiograms have shown no improvement. Four of the five had intrinsic renal disease, and the fifth had recent pyelonephritis. These toxic effects preclude the general use of the antibiotic at this time.

★

### Cerebral Blood Flow and Oxygen Consumption in Neurosyphilis

Because the pathologic lesion of neurosyphilis is one involving the blood vessels,

metabolic changes would be expected. With the narrowing and obliteration of vessels one might expect to find decreased cerebral blood flow and decreased oxygen consumption.

The nitrous oxide method for blood flow determinations was used; internal jugular venous and femoral arterial blood were used for this study. Arterial and venous oxygen and carbon dioxide content were determined in blood samples drawn after the nitrous oxide samples were obtained. These studies were carried out on 26 patients having dementia paralytica, 9 having meningovascular syphilis, 23 having asymptomatic neurosyphilis and on 16 normal control subjects. (Patterson, Heyman and Nichols, J. Clin. Investigation, 29: 1327, 1950.)

The mean cerebral blood flow in control subjects was 58 cc. per 100 Gm. of brain per minute; it was essentially the same in patients having asymptomatic neurosyphilis. In those having meningovascular syphilis this value was 38 cc. (66 per cent of normal), and in dementia paralytica the mean value was 42 cc. (72 per cent of normal). Cerebral oxygen consumption was 3.1 cc. per 100 Gm. of brain per minute in the control group and in those having asymptomatic neurosyphilis. In patients having meningovascular syphilis the mean oxygen uptake was 2.4 cc. (77 per cent of normal), and in dementia paralytica 2.2 cc. (73 per cent of normal). In one severe case of paresis it was only 0.76 cc. (24 per cent of normal).

Treatment with penicillin or penicillin and fever led in most instances to an increase in cerebral blood flow and in oxygen consumption as measured 4 months after treatment. Those showing the greatest increases also showed more striking clinical improvement. Those with the lowest values before treatment showed the least improvement either in blood flow, oxygen consumption or clinical improvement.

★

### Effect of Cortisone on the Experimental Cardiovascular and Renal Lesions Produced by Anaphylactic Hypersensitivity

Rich and his collaborators had shown that



ACTH given during the development of hypersensitivity to horse serum decreased the tendency for the appearance of periarteritis nodosa and rheumatic type of lesions. The results of that study showed that 90 per cent of 20 untreated sensitized rabbits developed these lesions. However, only 25 per cent of 20 sensitized rabbits treated with ACTH showed the vascular or rheumatic lesions.

A study of the effect of cortisone under like circumstances was undertaken. (Rich, Berthrong and Bennett, Bull. Johns Hopkins Hosp., 87:549, 1950.) Forty rabbits were sensitized with sterile horse serum. Beginning the day before sensitization, each of 20 rabbits were given cortisone daily in single injections; the other 20 animals were given injections of normal saline. Animals were killed on the fifteenth day after sensitization was begun. Skin tests for sensitivity had been done on the thirteenth day.

Cortisone did not alter the febrile response to sensitization. Nor did it alter the ability of the skin to react to the antigen at the intradermal test of the thirteenth day after sensitization.

However, though 85 per cent of the 20 control animals developed the cardiovascular lesions of hypersensitivity—that is, periarteritis nodosa and rheumatic-like cardiac lesions—only 4, or 20 per cent, of the 20 rabbits receiving cortisone daily showed such lesions. (These results are almost identical with those obtained with the use of ACTH.)

The usual sensitization acute glomerulonephritis occurred in 10 of the 20 control sensitized animals. This glomerular proliferation occurred in none of the cortisone treated animals, but instead there appeared in 13 of the 20 treated rabbits local necrosis of glomerular capillary loops and large hyaline masses in the tufts. These suggest the lesions of disseminated lupus and diabetes. No such lesions appeared in the 40 rabbits treated (referred to above) under similar circumstances with ACTH.

## DEATHS

John W. T. Dabbs, M.D., Nashville; Vanderbilt University School of Medicine, Nashville, 1914; aged 61; died December 6, 1950.

★

John Rowan Claypool, M.D., Nashville; University of Nashville Medical Department, Nashville, 1889; aged 88; died December 5, 1950.

★

Daniel E. Young, M.D., Sharon; University of Tennessee School of Medicine, Memphis, 1913; aged 66; died November 27, 1950.

## PROGRAMS AND NEWS OF MEDICAL SOCIETIES

### Eighty-Six Per Cent of Our Members Pay AMA Dues

<i>Society</i>	<i>Number Paying State Dues</i>	<i>Number Paying AMA Dues</i>	<i>Per- centage</i>
Anderson-Campbell	26	25	96
Bedford	18	18	100
Blount	26	24	92
Bradley	11	11	100
Cocke	5	5	100
Consolidated Medical Assembly of West Tennessee	126	124	98
Cumberland	10	7	70
Davidson	326	294	90
Dickson	8	8	100
Dyer-Lake-Crockett	24	21	88
Fentress	2	2	100
Franklin	8	8	100
Giles	9	7	78
Greene	19	17	89
Hamblen	23	22	96
Hamilton	182	173	95
Henry	12	9	75
Hickman	1	0	0
Humphreys	2	2	100
Jackson	4	4	100
Knox	227	135	59
Lauderdale	7	7	100
Lawrence	11	10	91
Lincoln	10	10	100
Macon	3	0	0
Maury	20	20	100
McMinn	16	16	100

Monroe	7	7	100
Montgomery	21	18	86
Obion	13	0	0
Overton	10	9	90
Perry	1	1	100
Putnam	12	12	100
Roane	42	41	98
Robertson	9	0	0
Rutherford	28	24	86
Scott	6	4	67
Sevier	8	8	100
Shelby	454	380	84
Smith	9	9	100
Sullivan-Johnson	57	54	95
Sumner	14	14	100
Tipton	8	7	88
Washington-Carter- Unicoi	68	59	87
Weakley	12	12	100
White, Warren, Van Buren	12	11	92
Williamson	12	11	92
Wilson	14	13	93
Totals for All 48 Local Societies	1,953	1,673	86

★

### Dyer-Lake-Crockett Society

The Society held its annual banquet meeting on December 13 and elected the following officers: President—Dr. Percy A. Conyers of Dyersburg; Vice-Presidents—Dr. J. Paul Baird of Dyersburg and Dr. E. H. Smythe of Tiptonville; Secretary-Treasurer—Dr. Lydia V. Watson of Dyersburg.

★

### Hamblen County Society

The Society elected the following officers at its annual President's dinner meeting in December: President, Dr. C. J. Duby of Morristown; Vice-President, Dr. Sam Sulenberger of Dandridge; Secretary-Treasurer, Dr. R. A. Purvis of Morristown. Dr. S. C. Fain was elected delegate to the Tennessee State Medical Association with Dr. D. J. Zimmerman being named his alternate.

★

### Memphis and Shelby County Society

This society held its annual banquet at the Memphis Country Club in December and elected the following officers: Presi-

dent, 1952, Dr. Henry B. Gotten; Vice-President, Dr. Sam H. Sanders; Treasurer, Dr. Battle Malone; Secretary, Dr. Malcolm Aste.

Dr. Gotten's election was the occasion for a very complimentary editorial in the *Memphis Press-Scimitar* on December 21, 1950.

★

### Chattanooga-Hamilton County Society

Dr. James L. Hamilton, Superintendent of Pine Breeze Sanatorium, was elected President of the Society in December. Dr. Hamilton, a brother of Dr. C. M. Hamilton of Nashville, succeeds Dr. W. D. L. Record.

★

### Maury County Society

This society has elected Dr. E. K. Provost as President; Dr. Kline W. Evans, Vice-President; and Dr. W. N. Cook, Secretary. Dr. Cook was also named delegate to the Tennessee State Medical Association.

## NATIONAL NEWS

### Industrial Health

The Eleventh Annual Congress on Industrial Health will be held in Atlanta, Georgia at the Atlanta-Biltmore Hotel on February 26-27-28, 1951. The theme of the Congress is "Teamwork, the Key to Successful Industrial Health Services." At the meetings will be discussed the interrelations of industry and agriculture, the cardiac in industry, civil defense, the problem of noise in industry, industrial pulmonary dust diseases, the economic poisons and other problems of common interest in industrial health work.

★

### Civil Defense

A new United States Civil Defense booklet has just been released, and may be purchased for 60 cents by addressing the Superintendent of Documents, Washington, D. C. It is entitled "Health Services and Special Weapon Defenses." This should be in the hands of every doctor on Civil Defense committees.

## INDUSTRIAL HEALTH CONFERENCE ATTRACTS NATIONAL ATTENTION



Some of the speakers at the first Tennessee Regional Conference on Industrial Health, held in Nashville last month. Standing is Dr. Jean S. Felton, Medical Director of the Oak Ridge National Laboratory, and Moderator of the Conference. Seated left to right are Joseph E. Flanagan, Jr., Federal Security Agency, Washington; Frank L. Oglesby, Medical Director of Tennessee Eastman Corporation, Kingsport; Dr. Jerry McCahan, Assistant Secretary, Council on Industrial Health, AMA; John R. Hill, Executive Director, Tennessee Hospital Service Association, Chattanooga; Dr. Alfred K. Meyer, Medical Supervisor, The DuPont Company Cellophane Plant, Old Hickory; Paul Christopher, Tennessee Director, CIO Organizing Committee, Knoxville; Dr. H. H. Hudson, Director of the Industrial Hygiene Division of the Tennessee Department of Public Health; and William A. Calvin, Acting Director, Social Insurance Department, American Federation of Labor, Washington.

Labor leaders and doctors sat down together in Nashville last month to seek an answer to the question: "Can Medicine in Industry Meet the Needs of the American Worker?"

The occasion was the first Tennessee Regional Industrial Health Conference held in Nashville, Dec. 7-8. Principal sponsors were The Tennessee State Medical Association, Tennessee Section, American Industrial Hygiene Association and Tennessee Department of Public Health.

Co-sponsors were The Tennessee Farm Bureau, Tennessee Hospital Association, Tennessee Manufacturers Association, the CIO and the AF of L, and Tennessee State Nurses Association.

The general theme of the meeting was woven into introductions of speakers by Dr. Jean S. Felton, Medical Director of the Oak Ridge National Laboratory. Dr. Felton, chairman of the TSMA's Industrial Health Committee, conceived the idea of the conference and hopes to make it an annual event.

Dr. Felton's summary of the meeting will

be found in an editorial elsewhere in this issue of The Journal.

On the second day, the delegates heard reports on the various services available for a health and medical program in industry.

Speakers on the program, besides those shown in the picture above, were Mrs. Thelma Durham, R.N., the Continental Can Company, Memphis; Miss Thelma Dean, director of nursing for The Palm Beach Company, Knoxville; Dr. Edward C. Holmblad, Managing Director, American Association of Industrial Physicians and Surgeons, Chicago; Dr. B. M. Overholt, Acuff Clinic, Knoxville; Dr. Victor K. Heiser, noted lecturer and author, New York, and Dr. Daugh W. Smith, Chairman of the Board of Trustees of the Tennessee State Medical Association.

Dr. Smith explained the formation, function and results of the Tennessee Plan of voluntary prepayment health insurance, sponsored by the State Association. As a result of his address, the Association has had several inquiries for details of The



Tennessee Plan from nationwide labor organizations.

## MEDICAL NEWS IN TENNESSEE

The Board of Directors of the Tennessee Academy of General Practice held a called meeting in Nashville on Sunday, December 17. The meeting was well attended.

The Board decided to have its annual meeting in conjunction with the meeting of the Tennessee State Medical Association in Nashville in April. The Academy will have its own scientific program on Monday, April 9, with the annual banquet and business meeting Monday night. The Academy extends an invitation to all general practitioners in Tennessee to attend their meeting.

The Board graciously extended time to Mr. Ed Bridges, Public Service Director of the State Association, and its Executive Secretary, V. O. Foster, to present the Association's legislative program for the hospital and medical care of the medically indigent of Tennessee. Following an extended discussion of this project, the Academy approved the program unanimously and pledged its support in the legislature.

The Board also voted to request the American Academy of General Practice to recognize the Nashville Post Graduate Medical Assembly as approved training for the members of the Academy of General Practice. Its members are required to complete 150 hours of post graduate study every three years in order to remain a member.

★

### Veterans Administration Hospital, Murfreesboro

Dr. Henry A. Davidson, Area Section Chief, Psychiatry and Neurology, Area Medical Office, Veterans Administration, Washington, D. C., gave lectures on the following subjects to the staff of the hospital in Forensic Psychiatry, December 18-20:

1. Criminal Responsibility.
2. Medico-legal Aspects of Domestic Relations.

3. Medico-legal Aspects of Wills, Contracts and Competency.

4. The Psychiatrist and the Juvenile Court.

5. The Tactics of Testimony.

★

### Middle Tennessee Association to Meet in Cookeville May 17

The next semi-annual session of The Middle Tennessee Medical Association will convene in Cookeville May 17, Dr. B. F. Byrd, Jr., secretary, announced this week.

This Association draws a heavy attendance and features a varied and comprehensive scientific program. Dr. Robert M. Finks of Nashville is the new president, succeeding Dr. W. K. Owen of Pulaski. Dr. W. N. Cook of Columbia is the President-elect.

## PERSONAL NEWS

Dr. O. W. Hyman, vice-president of the University of Tennessee Medical Units in Memphis, and dean of the College of Medicine, was honored on December 6 with a banquet in recognition of his appointment by President Truman to the National Science Foundation Board.

★

Dr. R. B. Wilson, prominent Huntingdon physician, is in the Baptist Hospital at Memphis, undergoing treatment for injuries sustained in an automobile wreck on the ice-covered highway two miles south of Henry, Tennessee.

★

Dr. Julian K. Welch was named president of the Brownsville Exchange Club, succeeding George Duffey, who has completed a highly successful administration.

★

Dr. William J. Sheridan and Dr. Robert C. Robertson have been named to a statewide committee by the American College of

Surgeons to sponsor legislation requiring ambulances to carry first-aid attendants. The proposed legislation is a part of a nation-wide program being sponsored by the American College of Surgeons to help reduce the number of accident fatalities in this country.

★

Dr. O. B. Taylor, Knoxville physician and surgeon, has been appointed vice-president for Tennessee by the National Medical Association. The physician has been affiliated with the NMA since 1923, serving as chairman of the auditing committee and as a member of the executive board for a number of years. The appointment was made by Dr. H. H. Walker of Nashville, NMA president.

★

Dr. John Nuckolls has received confirmation of his election to Fellowship in the American College of Surgeons in the section of urology. This Fellowship was awarded at the recent annual meeting of the American College of Surgeons in Boston. This is the second high honor that has been conferred this year upon Dr. Nuckolls, who has been practicing urology in Jackson for a number of years.

★

Dr. W. S. Alexander of Ridgely was presented his 50-year pin from the State Asso-

ciation December 13th. The occasion was the annual banquet of the Dyer-Lake-Crockett County Medical Society at Boyette's Dining Room on Reelfoot Lake.

★

Dr. Ernest W. Goodpasture, a Vanderbilt University pathologist, is on his way to Japan to study the effects of radiation and burns on victims of Hiroshima and Nagasaki atomic bomb explosions. The study is made at the request of the Atomic Energy Commission.

★

Dr. C. E. Peery, Jr., popular McMinnville physician and first vice-president of the Exchange Club for the past 6 months, was elected Tuesday night as president of the civic organization.

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Diplomate, American Board of Psychiatry and Neurology, Inc., Medical Director

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*The authors have made an interesting study relating the incidence of urinary tract calculi to the soils of the region.*

## THE FREQUENCY OF URINARY TRACT CALCULI IN PATIENTS FROM THE NASHVILLE BASIN\*

SAM YOUNG GARRETT, M.D., and HARRY S. SHELLEY, M.D., Nashville, Tenn.

Over the years there have been a number of observations indicating that urinary tract calculi occur more frequently in certain geographic areas than in others. Many of these reports have given reasons for an increased frequency of stones in terms of local conditions of temperature, water supply, diet, etc. It is recognized that there are predisposing factors to the formation of urinary calculi such as vitamin A deficiency, urinary tract infection and urinary stasis. These do not take into consideration conditions of disturbed protein or mineral metabolism which may lead to urinary tract calculi.

The Thayer Veterans Administration Hospital is located within the Nashville Basin, being first activated January 1, 1946. On the Urological Service, it was noted that there were a relatively large number of admissions for urinary tract calculi. Though no reason was readily apparent, this appeared to be a so-called stone forming area.

Examination of the geological formation of Nashville and the surrounding areas discloses that the Nashville Basin is an oblong area approximately 125 miles long in a northeast-southwest direction and 50 miles

wide in a northwest-southeast direction. The Nashville Basin is about 500 feet lower than the surrounding Highland Rim. The soils in the Basin are formed from limestones of the Ordovician period, which are relatively high in both calcium and phosphate content.

The towns lying within the Nashville Basin a few miles from the Highland Rim are, named in a clockwise manner and beginning in the northwest corner,—Nashville, Gallatin, Hartsville, Dixon Springs, Carthage, Gainesboro, Woodbury, Shelbyville, Fayetteville, Elkton, Pulaski, Mt. Pleasant, Columbia, Franklin and back to Nashville. (Fig. 1.)

Completely surrounding the Nashville Basin is the Highland Rim whose soil is not devoid of limestone but contains less limestone and one that has a lower phosphate content. The soils in the Highland Rim tend to be deeper and contain smaller amounts of minerals than the soils within the Nashville Basin. This band varies from ten to thirty or forty miles in width.

Towns lying on the Highland Rim outside of, but within a few miles of the Nashville Basin, in a clockwise manner are,—Springfield, Portland, Lafayette, Livingston, Cookeville, Sparta, McMinnville, Manchester, Winchester, Huntsville and Decatur, Alabama, Lawrenceburg, Hohenwald, White Bluff, Ashland City and back to Springfield.

Farther eastward from the boundary of

\*From the Urologic Service of Thayer Veterans Administration Hospital, Nashville, Tenn. Published with permission of the Chief Medical Director, Veterans Administration, who assumes no responsibility for the opinions expressed or the conclusions drawn by the authors.





FIG. 1. A geological map showing the Nashville Basin (Central Basin of Tennessee) as the dark portion with the surrounding 500 foot higher Highland Rim in light colors. The irregular light areas seen mainly in the southern one-third of the Nashville Basin represent hills and ranges of hills not yet eroded to Ordovician limestone. The Sequatchie Valley is seen in the right lower portion of the illustration.

the Basin, approximately another 500 feet of altitude is gained and a third type of soil is identified, which is of sedimentary origin but relatively low in calcium and phosphate. Towns lying within this belt are Jamestown, Crossville, Spencer, Altamont, and Mont-eagle. This general topography holds pretty well until East Tennessee is reached, where many of the valley soils are of limestone origin. However, most of the limestone in this area was not formed in the same geological period as that in the Nashville Basin and is lower in phosphate content than the limestone of the Basin.\* The relatively high phosphate content of the Nashville

Basin soil is shown by the commercial mining of phosphate in the southwest portion of the basin. (Outcroppings of phosphatic rock of sub-commercial value can be found almost throughout the entire Nashville Basin.)

The Cumberland River drains the upper two-thirds of the Nashville Basin. The main, though small, Nashville Basin Rivers flowing into the Cumberland from the south are the Harpeth, Stones and the Caney Fork. The lower or southern one-third of the Nashville Basin is drained by the Duck and Elk Rivers, both of which flow into the Tennessee River.

The Thayer Veterans Administration Hospital draws patients from the entire Nashville Basin, westward approximately to the Tennessee River, northward into Kentucky, and eastward almost to Knoxville,

\*We are indebted to Dr. H. B. Burwell and Mr. H. W. Ferguson of the Tennessee State Department of Geology for information concerning and the proof reading of the geological data contained in this paper.

thence southward along the course of the Tennessee River, to and including Chattanooga. To the south, by and large, patients come from the northern one-fourth of the state of Alabama.

In addition to these patients, since the hospital is a treatment center for certain special services, numerous patients are transferred from the states of Virginia, North Carolina, Georgia, Florida, and Alabama. Most of these patients have been seen previously at their regional Veterans Administration Hospital.

With this topography and geology in mind, it was decided to study the charts of patients having urinary tract calculi and who were admitted to the Veterans Administration Hospital, to learn if there is any correlation between the geological area and formation of urinary tract calculi. Only those calculi occurring in the urinary passages proper were considered. Prostatic calculi were not included in the list.

Three classes of cases were considered to have calculi. (1) Those who had a calculus removed at operation by one of us or other hospital staff members. (2) Those who passed a calculus which was recovered by straining the urine. A number of patients were admitted with acute, symptoms of ureteral colic and during their hospital stay, suddenly, felt, what they thought to be a calculus pass, to be lost in the toilet bowl since they failed to strain their urine. These were not included as patients having calculi unless a radiograph prior to the passage had shown a stone to be present and a comparable radiograph immediately afterwards showed the opacity to be absent. (3) The third group of patients considered to have calculi were those diagnosed by radiograph beyond any reasonable doubt. We were especially careful to distinguish between the phleboliths in the pelvic veins and ureteral calculi. An intravenous pyelogram or instrumentation was used to rule calculus in or out in such a case.

Not all of the patients studied entered the hospital because of urinary tract calculus. Many were picked upon examination for other conditions and this usually occurred by radiographic examination.

During the period of hospital admissions, roughly January 1, 1946 until September 1, 1949, there had been some 20,000 separate admissions to the hospital. This does not give a true picture since a patient who was readmitted four times would be given four separate re-admission numbers and of the 20,000 he would be counted as five admissions. There is no easy way to check on the readmissions in this 20,000 admissions. Though radiograph numbers run consecutively, veterans having diagnostic radiographs on an out-patient basis are given numbers in the same series as the hospital patients. Thus the radiograph numbers also provide a false enumeration of the total number of hospital patients.

A total of 225 cases of urinary tract calculi were diagnosed, including renal calculi, ureteral calculi, bladder calculi and urethral calculi. Though a patient may have been admitted to the hospital several times with a diagnosis of urinary calculus, each patient was counted only one time. Therefore the 225 cases of calculus represent 225 separate individuals. The percentage of all hospital admissions having calculi was 1.12 per cent plus. These calculi occurred in persons who were, or had been members of the U. S. Armed Forces during either the First or Second World Wars, though there may have been one or two Spanish American War Veterans in the group.

For the best possible study, it would have been well if each patient had lived in the same locality all his life. However, with persons moving around as they do, and moving from the Highland Rim down into the Nashville Basin and vice versa, it was necessary to set up some criteria to establish a site of residence. Since, an arbitrary point had to be chosen, we decided that the site of the patient's home for the six months prior to first symptoms from, or a diagnosis of urinary calculus should be used as his place of residence. We have observed the formation of a urinary calculus in a shorter period than six months in a number of instances. This decision had no bearing on the great majority of cases for they had not changed their permanent place of residence.



Nashville has a number of colleges and each year there is an influx of students from all over the United States, though most come from areas adjacent to Nashville. Some were student veterans and a few of these developed calculi. If the veteran came to Nashville in September and a calculus was first diagnosed in November, he was considered to have been continuously living at his home address. If he developed a calculus in April (more than six months after having been in Nashville) he was considered to be a resident of Nashville. Transients from other areas provided a few cases of calculi and these all were considered to be non-residents of the Nashville Basin. All patients who transferred to the Nashville Veterans Hospital because of urinary tract calculi and who came from areas outside the Nashville Basin were each counted as a patient with a calculus who lived outside the Nashville Basin. A veteran with a history of passing, or of having had a calculus removed elsewhere, prior to his admission to this hospital, was not considered in the series unless we could again make the diagnosis of urinary calculus. If we could again make a positive diagnosis, he was considered to be a resident of the area in which he resided for the six months prior to the original diagnosis of urinary tract calculus, even though he may have moved from the Highland Rim and been living in the Nashville Basin for a number of years since the original diagnosis was made.

It was necessary to have control patients to determine from what areas the normal hospital patient load comes. Therefore, at the time the hospital charts of the patients with calculi were drawn from the files, the chart just preceding and the chart just following the first admission chart of each individual calculus case was also withdrawn. It was not always possible to use the next chart since in several instances two adjacent charts were of patients each of whom had a positive diagnosis of urinary tract calculus. In such a situation the nearest four charts numerically were used as controls. (Patients giving a history of urinary calculi or who entered the hospital

with ureteral colic, though no diagnosis of calculus was made, were deleted from the control group and the next chart substituted.) The addresses of these hospital patients were used to determine the distribution of patients coming from within and without the Nashville Basin. This seemed to be a fair sample for several reasons. First, the patients would likely be of the same economic group. Secondly, by using as controls patients whose charts were numerically adjacent, any chronological discrepancy was eliminated. Thirdly, there would thus be no significant difference in occupation, creed or race. Fourthly, most of patients belonged in two age groups: that of draft age in World War I and of Selective Service age in World War II. All of the patients having calculi were males with one or two exceptions.

In all instances the name of the town in which the patient was born, the place where he is presently living and the duration were recorded. The addresses of all of the 675 cases—urinary calculus and control cases—were spotted on geological maps of Tennessee, Kentucky and Alabama. The East Tennessee area was considered separate from either the Nashville Basin, the Highland Rim or the Cumberland Plateau areas in the beginning because the soils of the East Tennessee Valleys are primarily of limestone origin, though of limestone unlike that found in the Nashville Basin. In deciding whether or not a patient lived in or out of the Nashville Basin, a more or less arbitrary line had to be drawn because one type of soil does not cease and another begin in an orderly manner. However, the map was followed as closely as possible. If the map showed that he probably lived only a mile from the Basin on the Highland Rim, he was classed as living outside the Nashville Basin. In the few such cases it is recognized that well or other underground water probably originated in limestone strata and that very likely a portion of the vegetables, milk and other foods would have a Nashville Basin origin.

One problem was the Sequatchie Valley whose soil is of limestone origin, approximately two-thirds of it being identical with



that of the Nashville Basin. Several patients having calculi came from this area. To be completely fair it was decided that the entire Sequatchie Valley would be considered of non-Basin soil type. Such care not to favor the Basin was observed throughout the study.

TABLE I

Cases	Calculi		No Calculi (Controls)	
	Number	Per Cent	Number	Per Cent
Total	225	100	450	100
Nashville Basin	112	49.77	145	32.22
East Tennessee Valley*	23	10.22	63	14.00
All Other	90	40.00	242	53.77

\*The East Tennessee Valley group was kept separate during the study but when the occurrence rate of calculi in the "All Other" group is used to predict the expected number of calculi in the East Tennessee Valley group the actual number is found to be close numerically.

90:242 :: X:63;  $242X=5670$ ,  $X=23.43$  predicted, 23.00 occurred. These figures while probably too small to be of statistical significance gave us assurance that the two groups approached each other and in neither case did they approximate the occurrence rate of calculus in the Nashville Basin group.

Including the East Tennessee Valley cases and "All Other" cases into one group we obtain the figures of Table 2.

TABLE 2\*

Cases	Calculi		No Calculi (Controls)	
	Number	Per Cent	Number	Per Cent
Total	225	100	450	100
Nashville Basin	112	49.77	145	32.22
Total "Other"	113	50.22	305	67.77

\*We are indebted to Dr. Puffer of the Tennessee State Department of Public Health, for reviewing these figures. Dr. Puffer feels they are significant and might occur by chance less often than one in one thousand times.

Table 2 shows that while about one-third of the total patients admitted to the hospital came from the Nashville Basin, almost one-half of the patients with calculi came from the Nashville Basin. Conversely while two-thirds of the total hospital admissions came from areas other than the

Nashville Basin, about one-half of the total instances of calculi came from without the Nashville Basin.

### Discussion

It is unfortunate that only a few of these calculi were analyzed chemically.\* Not all, but a high percentage of the patients had calcium and phosphorus blood level determinations. (Two cases of hyperparathyroidism and urinary tract calculi were not included in this series.) We feel that the vast majority of the calculi in this study were basically calcium and/or phosphate stones. There was a single patient who had non-opaque calculi (other than quite small calculi that are often missed by radiograph). He had cystinuria with recurrent cystine stones and has had no calculi during the past year since beginning an alkaline ash, low cystine diet with added vitamin A and a high fluid intake. It seems quite unlikely that urinary calculi due to a disturbance of metabolism should occur on a geographic basis.

Urinary tract infection and urinary stasis are two frequent and important underlying causes of calculi. There is no reason to think that either of these is more prevalent within than without the Nashville Basin.

Why should dehydration and urinary concentration occur more frequently within than without the Nashville Basin? The Highland Rim and Cumberland Plateau are 500 to 1,500 feet higher than the Nashville Basin. The accepted rule of thumb is that the atmospheric temperature decreases 3° F with each 1,000 feet of elevation attained. It is unlikely that such a temperature difference would have any real effect in the problem at hand. If there were a temper-

\*Fourteen urinary tract calculi obtained from patients at the Nashville Veterans Hospital have been qualitatively analyzed. While a few of these 14 were from the above reported series, most have been obtained from patients admitted since the above study was completed.

Calcium present in 14 instances

Carbonate present in 10 instances

Phosphate present in 10 instances

Ammonia present in 8 instances

Calcium Oxalate present in 7 instances

It is interesting to note that none of these 14 analyses showed any ureates or uric acid to be present.

ature change due to elevation, and urinary calculi were more prevalent within the Nashville Basin because of it, one would expect the figures for the East Tennessee Valley to approach those of the Nashville Basin, since the elevation of the East Tennessee Valley is between that of the Nashville Basin and the Highland Rim.

There is no reason to believe that the types of food in the diet vary sufficiently between the patients of the Nashville Basin and of non-Basin areas to account for a difference in incidence of calculi. Though a possible variation of diet must be considered, we feel the higher mineral content of the Nashville Basin soils reflected in food and water taken from these soils is the important factor.

### Conclusions

1. From the preceding data and discussion, it appears that there is a higher incidence of urinary tract calculi within the Nashville Basin than in surrounding areas. We believe this is due to the relatively high

mineral content of the soils and water of this area.

2. Persons living within the Nashville Basin who have recurrent urinary tract calculi uncontrolled by,—(1) increased vitamin A intake, (2) acid ash diet\* and (3) high fluid intake may be advised that moving outside the Nashville Basin may be of benefit.

3. To avoid urinary tract calculi it may be worthwhile for persons living within the Nashville Basin to keep their urines reasonably dilute by increasing their daily fluid intake.

We are especially indebted to Mr. Mac R. Hanner, Nashville Veterans Administration Hospital Registrar and his staff for their efficient handling of the more than one thousand charts perused in this study.

We are likewise indebted to Mr. Homer L. Jones for the illustration.

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\*An exception to the acid ash diet is made with cystine calculi as they are more soluble in an alkaline medium.

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### Sourdille, G. P., The Indications and Technique of Iridencleisis. *Am. J. Ophth.*, 33: 1959, 1950.

Despite the controversy over iridencleisis and its dangers, the author feels, after performing 1,100 fistulizing operations that iridencleisis is the procedure of choice in chronic and subacute glaucoma and in hypertensive uveitis. Medical treatment should be tried first but if it fails, the patient should be subjected to surgery without much delay. The technique of the operation differs from the usual, and strict adherence to this particular technique is urged if the same excellent results are to be obtained. For red eyes, adrenalin, ephedrine and privine are instilled for a prolonged period and the retrobulbar injection consists of equal

parts of 4 per cent procaine and ephedrine with a few drops of adrenalin. Hemorrhage is minimized by giving two injections of adrenoxyl. A conjunctival flap is made and brought down over the cornea; then a scleral incision tangent to the limbus is made with a razor blade. This incision is 4 mm. long and 1.5 mm. from the limbus. When the iris root prolapses there is a pause of 30 to 40 seconds to allow the gradual escape of aqueous. The iris sphincter is divided to allow a lip of the iris to rest over the scleral margin. The conjunctiva is sutured and, except in subacute glaucoma, atropine is instilled.

(Abstracted by Robert J. Warner, M.D., Nashville, Tenn.)



*The author brings out the adaptability of the hematocrit tube to office practice and its value even in untrained hands. The classification and evaluation of anemias depends upon this technic as is brought out in the Editorial in this issue.*

## THE USE OF THE WINTROBE HEMATOCRIT TUBE IN THE OFFICE LABORATORY\*

J. WARREN KYLE, M.D., and SARA GRACE RICHMOND, B.S., Memphis, Tenn.

The use of the Wintrobe hematocrit tube in the routine examination of patients has the advantage of simplicity, economy, accuracy and the wide variety of information obtained at a minimum of effort. We doubt if these advantages are appreciated enough or that the method is used as widely as it should be by practitioners.

First, in 1933 and again later Wintrobe<sup>1, 2</sup> described several practical uses of his hematocrit tube. With it the following information may be obtained from the same cubic centimeter of blood: (1) the erythrocyte sedimentation rate; (2) the presence of anemia or polycythemia (packed volume of red cells); (3) the presence of leukopenia, leukocytosis, or alteration in the quantity of blood platelets (packed layer of leukocytes and platelets); and (4) the appearance (color or opacity) of the blood plasma.

Our experience with the Wintrobe hematocrit tube includes its use in the routine examination of over 1,000 individuals who were studied for the evaluation of blood tests in the diagnosis of cancer. One of us (JWK) uses the method in his practice and we have information from other physicians who do likewise. Furthermore, the method is used on the wards of the John Gaston Hospital as a screening examination in the Division of Medicine.

### Technic

The technic for the use of the tube is clearly presented by Wintrobe<sup>2</sup>. It is reviewed briefly here to emphasize certain points from our experience.

About 2-5cc. of venous blood are placed in a small bottle or tube and mixed with a dried mixture of ammonium and potassium

oxalate.\* This blood is used to fill the hematocrit, which holds 1 cc. The remainder is saved for red cell or white cell counts if they are indicated by the clinical picture or the finding of abnormalities with the Wintrobe tube. (At the same time this blood is collected, it is also convenient to obtain 4-5 cc. of clotted blood for the test for syphilis and to make blood smears from drops of blood from the needle.) It is important to use the proper anticoagulant. Sodium or potassium oxalate cause shrinkage of the red cells which will materially reduce the packed cell volume; the recommended mixture of ammonium and potassium oxalate prevents shrinkage. Dried anticoagulant is used since liquid anticoagulant introduces the factor of dilution.

The Wintrobe tube is graduated at millimeter intervals for 100 millimeters. It has two scales, one reading downward for measurement of the sedimentation rate and one reading upward for measurement of the hematocrit. The tube is filled with a special metal pipette. Pipettes made of glass break so easily they are uneconomical. (A blunt spinal needle with a hypodermic syringe may also be used.)

The tube is filled to the level of 0-10. With a little practice, non-professional office assistants can learn to do this accurately. The tube is then placed in a vertical position for one hour and the sedimentation rate determined. We use two methods of determining the sedimentation rate. The Wintrobe method consists of expressing the total fall in millimeters per hour. In a modification of the Rourke-Ernstene method which we use<sup>1</sup>, the sedimentation rate is

\*From the Divisions of Medicine and Pathology and Bacteriology, the University of Tennessee College of Medicine, and the John Gaston Hospital, Memphis, Tenn.

<sup>1</sup>1.2 Gm. ammonium oxalate and 0.8 Gm. potassium oxalate are dissolved in 100 cc. of neutral distilled water; 1 cc. 40 per cent formalin is added to prevent deterioration; 0.5 cc. of this mixture is added to each tube or bottle and allowed to dry.



read at fifteen-minute intervals. The fifteen-minute interval with the most rapid fall is noted and the fall per minute in millimeters is obtained thereby. This method has the theoretical advantage of avoiding the initial phase of aggregation and the terminal phase of packing in rapid rates. Correction for anemia may be made by the charts of Wintrobe and Landsberg<sup>5</sup> or of Rourke and Ernstene.<sup>6</sup> The recommended normal values are as follows:—Wintrobe, for men 9 mm. per hour, women 21 mm. per hour; Rourke-Ernstene, 0.4 mm. per minute. We prefer using 0.5 mm. per min. as the upper limit of normal for the Rourke-Ernstene method, especially when it is used as a screening test for occult disease.

Some of the technical factors which may affect the sedimentation rate should be mentioned.<sup>2</sup> The sedimentation rate should be determined within two hours after the blood is drawn; if the blood stands for long periods, the sedimentation rate is increased. Pronounced changes in temperature affect the sedimentation rate, there being a direct relationship between the two. At average room temperature this is not an important factor, but if the blood has been placed in a refrigerator, it should be allowed to reach room temperature before the test is done. The tube must be kept in a true vertical position; if the tube stands at an appreciable angle from the vertical, the rate is significantly increased.<sup>†</sup>

After the sedimentation rate has been determined, the tube is placed in a 15 ml. holder and centrifuged at a speed of at least 3,000 r.p.m. for 30 minutes. Then the packed volume of red cells, and the packed superficial layer of white cells and platelets are measured, and the color and degree of opacity of the plasma are observed.<sup>‡</sup> If one hematocrit tube is used, it

takes one and a half hours to do the sedimentation rate and the centrifugation for the packed cell volumes. To save time, two tubes may be filled and both procedures started simultaneously.

#### *Erythrocyte Sedimentation Rate*

The erythrocyte sedimentation rate is a widely used and valuable test for the presence and intensity of certain disease processes, especially those associated with tissue destruction. Abnormal sedimentation rates reflect changes in the plasma proteins caused by disease, but anemia (with the exception of sickle cell anemia) also increases the sedimentation rate. Attempts have been made to "correct" the sedimentation rate for anemia by means of the hematocrit and the use of charts such as those of Wintrobe and Landsberg, and Rourke and Ernstene. It is well known that occasionally sedimentation rates may be "over-corrected" by the use of these methods, and it is advised by Wintrobe<sup>2</sup> that both the corrected and uncorrected rates be known to the physician so that he can use his judgment in interpreting the information.

We made a study of sedimentation rates as a screening test for disease in 752 individuals, comparing a modified Rourke-Ernstene method and the Wintrobe method, both uncorrected and corrected.<sup>7</sup> Our results indicated that with either method, unless the rates were corrected for anemia, the test was too sensitive and not specific enough for disease to be of practical value. The group of individuals we studied, however, were largely colored indigent patients and there was a widespread occurrence of mild to moderate anemia even in individuals with no detectable disease or with inconsequential disease.

In comparing the Wintrobe and modified Rourke-Ernstene methods, we found that the former was more sensitive and less specific for disease than the latter. We considered lack of specificity to be a disadvantage in a screening test, so our favorite

<sup>\*</sup>Special stands are available to offset this difficulty. If care is used to keep the tube vertical, a simple stand can be made by pushing the bottom of the tube in a large one-hole stopper.

<sup>†</sup>The kind of centrifuge is important. It must be able to deliver at least 3,000 r.p.m. Slant head centrifuges are not desirable since they slant the tops of the packed cell volumes and make them more difficult to read. The centrifuge we recommend is the International Model (International Equipment

Co., Boston, Mass.) with a head equipped with four 15 ml. holders. For mass screening or hospital work, 50 ml. holders may be used and 3 to 3 hematocrit tubes placed in each holder.

for this purpose was a modified Rourke-Ernstene method corrected for anemia with 0.5 mm. per minute as the upper limit of normal instead of the usual 0.4 mm. per minute. With this method, the test was more specific for disease and was also reasonably sensitive.

Some of our results with the sedimentation rate used in this manner in various disease states and in apparently normal individuals are listed in Table I. It may be seen that, when some of the obvious diseases which cause an abnormal sedimentation rate are ruled out, the test may be used to advantage to detect occult or symptomatic disease such as cancer, chronic or low grade infections or tuberculosis. It is apparent that a normal sedimentation rate does not necessarily indicate that disease is not present.

Other uses of the sedimentation rate are well known and valuable to clinicians. These are: (1) to help in the differential diagnosis of disease, i.e., myocardial infarction from angina pectoris; and (2) to follow the intensity or degree of activity of a disease process, i.e., rheumatic fever.

*Hematocrit*—(packed volume of red cells)

The hematocrit is the most accurate of the tests performed with the Wintrobe tube. Indeed, it is the most accurate and reproducible laboratory method for determining the presence of anemia or polycythemia. The factors of skill and experience are practically of no significance in performing this test, whereas they are extremely important in red cell counts and hemoglobin determinations.

In a recent study of the accuracy of some common blood examinations by Ham<sup>8</sup>, the performance of the hematocrit was exceptionally good. (See Table II.) This study showed the excellent reproducibility of the hematocrit and the photoelectric hemoglobin determination. The poor showing of other methods of hemoglobin determination and blood cell counts was demonstrated. Because of its accuracy, the hematocrit is of great value in following treatment in anemia and response to transfusions. Ham does not recommend the red-cell count as a

routine screening procedure<sup>8</sup> and we are in complete agreement with this policy.

Average normal values for the hematocrit in adults are: women, 42.0 per cent  $\pm$  5.0; men, 47.0 per cent  $\pm$  7.0.

*Buffy Coat* (packed layer of leukocytes and platelets)

On top of the packed mass of red cells there is a reddish gray layer made up of white cells and platelets. This layer is commonly called the "buffy coat." Normally this layer varies from 0.5-1.0 mm. in thickness.<sup>1, 2</sup> When the platelet count is approximately normal, the reddish gray layer may be used as a rough guide to the white cell count, each 0.1 mm. corresponding roughly to 1,000 white cells. When leukocytosis is pronounced, more packing of the white cells occurs, and 0.1 mm. corresponds more clearly to 2,000 white cells.

There are a number of factors concerned in the thickness of the buffy coat,—the number of white cells, the kind of white cells, and the number of platelets. Lymphocytes are smaller than myeloid cells, consequently in a lymphocytosis the buffy coat is relatively narrow. On the other hand, thrombopenia or thrombocytosis will affect the thickness. When thrombocytosis is present, a separate cream colored layer consisting of platelets can be detected on top of the reddish gray layer.

In addition to the variables concerned, the test is made less accurate by the difficulty in reading thicknesses of fractions of a millimeter graduated at 1 mm. intervals. We studied this measurement from the standpoint of its use purely as a screening test for abnormal white cell counts, that is counts below 5,000 and above 10,000. (See Table III.) It should be kept in mind that the white cell count itself is subject to wide degrees of variation when done on the same blood by different individuals.<sup>8</sup> (See Table II.)

Our results indicated that when the leukocyte counts were normal the occurrence of abnormal buffy coats was low (about 7.1%). When leukocytosis was present, a fairly large per cent had normal buffy coats (33.0%); but when counts of 10,000 to 11,000 were excluded only 16.5 per cent



had normal buffy coats. When leukopenia was present only 13.3 per cent had normal buffy coats, and when leukocyte counts of 4,000 to 5,000 were excluded, only 2.2 per cent had normal buffy coats. It would seem, therefore, that the buffy coat is reasonably good as a rough screening test for abnormal leukocyte counts and that it may be recommended for routine use. White cell counts should be done, however, when the buffy coat is abnormal or when the count is important in differential diagnosis, i.e., fevers of unknown origin, pneumonias, appendicitis, myocardial infarction, etc. If blood smears are examined routinely when the buffy coat is used, instances of absolute lymphocytosis may be detected, even though in this particular kind of leukocytosis the buffy coat may be normal or relatively slightly abnormal.

#### *Color and Opacity of the Plasma*

Jaundice and lipemia may be observed by simple inspection of the supernatant plasma in the hematocrit though it is not a sensitive test for these abnormalities. This is the least useful part of the technic in the use of the Wintrobe tube, but in rare cases it may call attention for the first time to jaundice or lipemia. Wintrobe devised a comparator for the determination of the icterus index on the plasma, but we have had no experience with it.

#### *Comments*

The technic of using the Wintrobe tube in the routine examination of patients is especially recommended to the practitioner with limited office personnel and laboratory equipment, or to the practitioner who does no routine screening examinations on the blood. This technic is sponsored as being simply performed, inexpensive and capable of giving a variety of information. Part of that information, specifically the volume of packed red cells, is the most accurate method available for determining the presence of, and degree of anemia or polycythemia.

When the tests performed with the Wintrobe tube are combined with examination of the blood smear, urinalysis, serologic test for syphilis and photofluorogram of the chest, a good screening system exists to

supplement the history and physical examination for the routine examination of patients.

Indeed we recommend that the tests performed with the Wintrobe tube be substituted for routine red and white cell counts, and hemoglobin determinations in offices and hospitals where those routine examinations are being done. This does not mean that red and white cell counts and hemoglobin determinations should not be used. They should be used under the following conditions: (1) significant abnormalities in the hematocrit, buffy coat or smear; (2) in the differential diagnosis of fevers and infections (white cell count); (3) in the differential diagnosis of myocardial infarction and angina pectoris (white cell count); (4) in the typing of anemias (red cell count and hemoglobin to be used in conjunction with the hematocrit). In suspected thrombocytopenia platelet estimations should be done.

It should be emphasized that intelligent examination of the blood smear to detect abnormalities in red cells, platelets, and white cells is extremely valuable as a routine screening procedure and in diagnosis.

#### *Summary and Conclusions*

(1) The use of the Wintrobe hematocrit tube to determine the erythrocyte sedimentation rate, hematocrit, buffy coat, and color or opacity of the plasma is a simply performed, effective screening procedure. This technic is especially appropriate for physicians with limited laboratory facilities and personnel.

(2) Our experience in the use of these tests largely reiterates the work of Wintrobe.

(3) The accuracy and reproducibility of the hematocrit (packed volume of red cells) is emphasized. It is superior to the red cell count and hemoglobin determination in screening for anemia or polycythemia.

(4) The routine use of blood cell counts (particularly the red cell count) is wasteful and often inaccurate.

(5) We recommend the test performed with the Wintrobe tube for the routine screening examination of patients. This should be combined with examination of the



stained blood smear. Blood cell counts would be done only when there are significant abnormalities in the hematocrit, buffy coat, or blood smear, for differential diagnosis or in the typing of anemias.

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TABLE I		
Percentage of Abnormal Sedimentation Rates Occurring in Various Diseases and in Normal Controls. Based on a Study of 752 Individuals. <sup>7</sup>		
Classification	Percentage with Abnormal Tests (Rourke-Ernstene >0.5 mm./min.)	
Post-Operative Cases		
Diffuse Collagen Disease	70-80 per cent	
Bacterial Pneumonia		
Abscess		
Cirrhosis and Hepatitis*		
Extensive Localized Cancer	55-65 per cent	
Pulmonary Tuberculosis		
Miscellaneous Acute Infections		
Goiter*		
Benign Tumors		
Small Localized Cancer	35-50 per cent	
Metastatic Cancer		
Chronic and Low Grade Infection		
Fractures		
Heart Disease		
Leukemia and Lymphoma*		
Duodenal Ulcer*	15-35 per cent	
Other Non-malignant and Non-infectious Diseases		
Controls		
Minor Disorders	0-8 per cent	
Sickle Cell Anemia*		

\*Less than 10 cases studied.

**TABLE II**  
Results Obtained by Different Medical Students After Considerable Training in the Examination of Samples of the Same Blood Specimen from a Patient with Cooley's Anemia\*  
(Reproduced from Ham<sup>8</sup> by Permission of the Author)

Determination	Number of Observations	Maximum	Minimum	Mean (Average)	Two Standard Deviations (2 sigma)†	Two Coefficients of Variation %
Hematocrit (percentage)	10	25.0	23.5	24.1	±0.84	±3.4
Hemoglobin (gm/100 ml):						
Photoelectric-cell colorimeter (Evelyn)	9	8.3	7.8	8.0	±0.36	±4.5
Spencer hemoglobinometer	17	9.1	8.0	8.7	±0.78	±9.0
Sahli	17	9.7	7.3	8.9	±1.2	±14.0
Haden-Hauser	17	8.7	7.5	8.2	±0.8	±10.0
Tallqvist	17	9.4	6.5	7.8	±1.6	±21.0
Counts of formed elements of blood:						
R. B. C. (10 <sup>9</sup> /mm <sup>3</sup> )						
(2 pipettes, 2 chambers)	20	2.5	2.0	2.2	±0.36	±16.0
(1 pipette, 2 chambers)	18	2.4	1.7	2.1	±0.28	±13.0
W. B. C. (10 <sup>3</sup> /mm <sup>3</sup> )	18	11.6	7.55	9.1	±1.83	±20.0
Reticulocytes, wet method (per cent)	19	6.2	2.2	4.0		

\*The limits of significance (two coefficients of variations) are representative of the methods themselves and indicate what may be obtained from any laboratory. The small error of the hematocrit and the hemoglobin determined by the photoelectric-cell colorimeter (Evelyn) should be especially noted.

†Units are those of the observations.

**TABLE III**  
Comparison of White Cell Counts and Buffy Coats from the Same Samples of Blood  
(Based on 442 Determinations)

Number of Determinations	Range of White Cell Counts	Thickness of the Buffy Coat		
		Less than 0.5 mm.	0.5-1.0 mm.	Greater than 1.0 mm.
306	5,000-10,000	14 (4.5%)	284 (92.9%)	8 (2.6%)
91	Over 10,000	0	30 (33.0%)	61 (67.0%)
45	Less than 5,000	39 (86.7%)	6 (13.3%)	0

## CASE REPORT

### Gas Gangrene

#### Report of a Case with Unusual Response to Treatment

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The purpose of this paper is to report a case of *Clostridium welchii* infection, complicating a compound fracture, in which there was remarkable response to treatment, suggesting that aureomycin may be an adjunct in the prophylaxis of infection following compound fracture.

#### Case Report

J. M., a 2½ year old female was brought to the Vanderbilt University Hospital on August 19, 1950, about 72 hours following an accident in which she sustained a compound fracture of the right ulna, when she fell from a porch to the ground. She was seen immediately after the accident by her family doctor, who reduced the fracture in a hospital and gave the child a prophylactic dose of gas gangrene and tetanus anti-toxin. He said that the compound wound was not grossly dirty and did not appear to have resulted in appreciable damage to the underlying soft tissues. For these reasons he felt that debridement was not necessary. A circular plaster cast was applied to the extremity and the child was taken home.

About 18 hours after the injury, the parents noted that the child's hand was quite dark and she was unable to move her fingers. She was again seen by the family doctor, who removed the cast and placed the forearm on a splint. There was said to have been improvement in the color of the hand at this time. The child was again taken home.

During the following 24 hours, the parents noted that the child became progressively more ill and they noted a "strong odor" from the forearm. The child was again taken to the family doctor who removed the splint and told the parents that gangrene had developed and advised them to bring the child to Vanderbilt University Hospital.

Physical examination on admission revealed an acutely ill child. Temperature 102°, pulse 170, respirations 28. The skin was hot and damp. The child was listless and crying weakly. Examination of the right forearm revealed a laceration 1 cm. in length on the volar surface in the middle one-third. There was exudation of sero-sanguinous material from the wound. The skin surrounding the laceration was deep blue in color and there was a line of color demarcation at the junction

of the upper and middle thirds of the forearm. Palpation revealed crepitation of the subcutaneous tissue up to the elbow joint. There was a strong odor suggestive of gas infection.

Figure 1 is a reproduction of the X-ray film



FIGURE 1. Admission X-ray showing presence of gas in deep and superficial muscle layers of forearm, upper arm and hand.

taken on admission. This revealed the presence of widely disseminated gas beneath the deep fascia, following the muscle planes to the dorsum of the hand and to a point about two inches above the elbow joint.

It was decided that an immediate amputation was necessary to save the child's life. A guillotine type of amputation through the mid-humerus was performed under ether anesthesia. The patient tolerated the operation poorly. Her pulse became thready, the skin pale and respiration irregular. The operation consumed thirty minutes and it was doubted that she would survive the procedure. As soon as the amputation was completed, she was placed in Trendelenburg's position and there was some gradual improvement in her color and skin temperature.

At amputation it was noted that the muscles at the site were quite pale in color and bled poorly. There was frothiness of the tissue fluids and it was felt that gas extended above the level of the amputation.

Following surgery the child was placed on penicillin, streptomycin and aureomycin as indicated on the graphic chart, Figure 2. Penicillin was given in a dosage of 100,000 units every three hours; streptomycin 0.25 Gm. was given four times per day and aureomycin was given in a dosage of 250 mgm. every four hours.

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Vanderbilt University Hospital

History No. 191680

Ward 4300

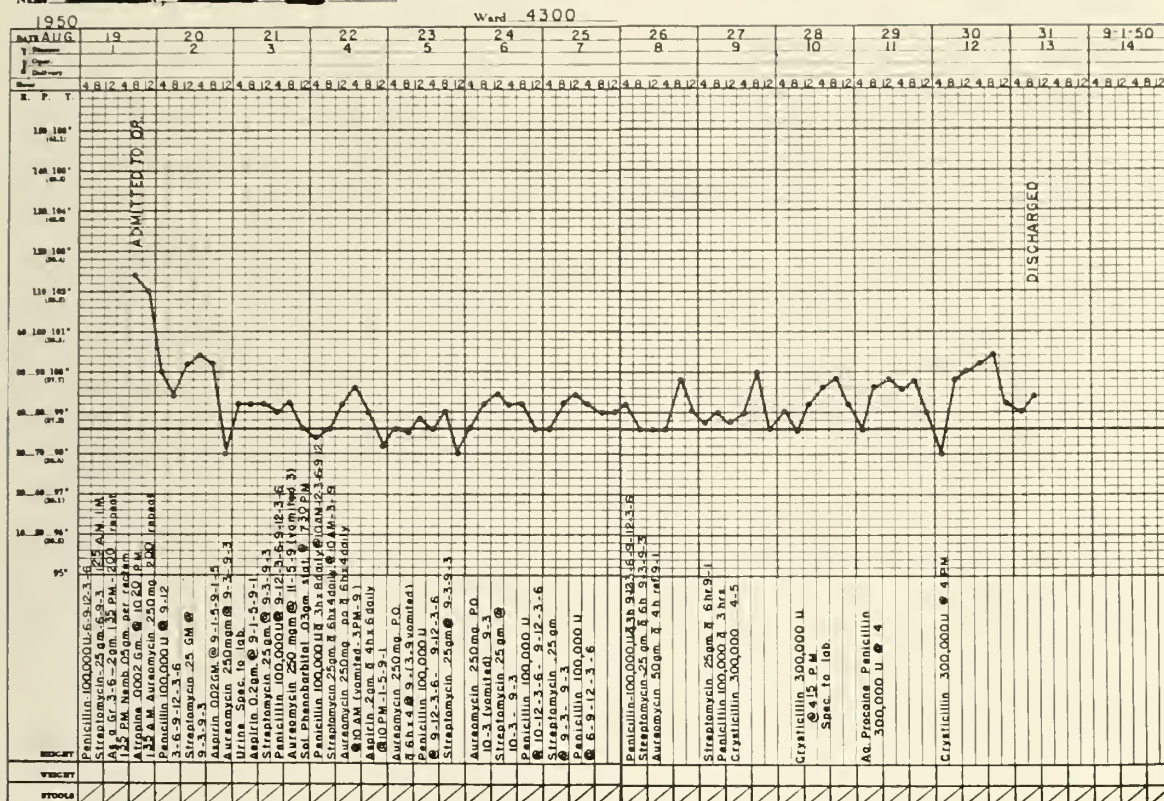


FIGURE 2. Graphic rectal temperature chart showing immediate response to treatment.

Culture of material from the wound was taken on admission. This revealed *Cl. welchii*, non-hemolytic streptococci and colon bacilli.

Post Operative Course: There was almost immediate improvement in the patient's general condition and within 48 hours her temperature and pulse were normal and remained so throughout her stay in the hospital. The wound was dressed every 48 hours and after the first redressing there was very little drainage. Gentle traction was maintained on the skin of the arm with adhesive tape.

Three weeks after the amputation the wound was completely healed with a granulated area about 1 inch in diameter over the end of the humerus.

## Comment

To those who were consulted in this problem, the response to treatment was considered as unusual. The child's condition was so grave on admission that it is felt the

amputation alone does not account for so dramatic a recovery. It is believed that streptomycin and penicillin, while helpful in controlling the secondary organisms, would not have brought the *welchii* infection under control so quickly and that aureomycin was the principal factor in bringing about recovery.

## Conclusions

It is our opinion that aureomycin should be administered in addition to penicillin and streptomycin in all cases of compound fracture because of its possible prophylactic action against *Cl. welchii* infection. Aureomycin should be given in a dosage of 250 mgms. every four hours for at least 72 hours, or until there is freedom from elevation of temperature following this period.



## VANDERBILT UNIVERSITY SCHOOL OF MEDICINE SURGICAL STAFF CONFERENCE\*

### *Surgical Lesions of the Esophagus*

DR. ROLLIN DANIEL: Ten years ago in Vanderbilt University Hospital lesions of the esophagus were very rarely operated on. Direct attacks on lesions of the esophagus were largely for injuries, perforations and benign strictures due to the swallowing of corrosive lye. In most instances stricture was attacked indirectly, in that gastrostomy was performed and retrograde dilatation was carried out. During this ten year period of time, the methods of treatment of lesions of the esophagus have changed to such an extent that at the present time we are able to perform operations upon the esophagus with a very high degree of safety.

The first operation for excision of a carcinoma of the esophagus was carried out in this hospital in 1942. This patient was a woman. She died about six weeks after operation. Since that time, we have operated upon 44 patients with obstructing malignant lesions of the esophagus. I include in that group patients who had primary carcinoma of the esophagus and patients who had primary carcinoma of the cardia of the stomach which had invaded the esophagus and caused esophageal obstruction. Eight of these patients died in the hospital, a hospital mortality rate of about 19 per cent. I think it is important to call attention, however, to the fact that six of these deaths were among the first half of the group of patients who were operated upon and only two of these hospital deaths were among the last half. I should say also that of the 44 patients mentioned 12 were inoperable, since it was impossible to remove the tumors. So resection of the esophagus for malignant disease has been carried out on 32 patients.

Dr. Cate has a summary of a few of the patients having esophageal lesions.

#### Case I

DR. W. R. CATE, JR.: The first patient is a

48 year old white male who was admitted to this hospital on March 6, 1950. He complained of dysphagia for 1 year, accompanied by postprandial epigastric pain. A gastro-intestinal series performed elsewhere prior to admission was said to reveal a duodenal ulcer. The patient was treated by diet and antispasmodics with some slight relief of his symptoms. They recurred, however, and for the 3 weeks prior to admission the patient had had great difficulty in swallowing either liquids or solids. During the year of his present illness he had lost 100 pounds.

Physical examination showed only the signs of marked weight loss and malnutrition. Esophagoscopy revealed a constriction at the lower end of the esophagus. It was biopsied but the microscopic sections revealed only normal gastric mucosa. X-rays were thought to reveal cardiospasm. The stomach was never adequately visualized by X-ray examination because of the slow emptying of barium into the stomach from the esophagus.

The patient had two dilatations with the pneumatic dilators on the basis of the negative biopsy. However, his symptoms persisted and on April 5, approximately a month after admission, operation was performed. He was found to have a large fixed tumor in the stomach which was obviously inoperable and which had invaded the gastro-hepatic ligament and liver and was densely adherent to the surrounding structures. However, enough of the fundus of the stomach was freed to permit performing a side-to-side esophago-gastric anastomosis. His postoperative course was uncomplicated and he was eating well at discharge. He died approximately four months from the date of admission.

DR. DANIEL: Dr. Francis, may we see the X-ray films? (Fig. 1.)

DR. HERBERT FRANCIS: There is dilatation of the esophagus throughout its entire course until we get to the diaphragm at which point there is a very small trickle of the opaque medium into the stomach. There is so much obstruction that the stomach could not be filled to visualize it or to determine whether there was any lesion present there. I think that is always important. One should never examine the esophagus alone, even though that is what is requested because obstructing lesions at the lower end of the esophagus may result from a growth in the stomach or be caused by cardiospasm. You see here a rounded mass at the lower part with just a very thin trickle of barium coming from the very center of it. These films are somewhat suggestive of cardiospasm. Cardiospasm almost invariably gives a conical

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shape without much variation in the outline of the wall of the esophagus. Deformities of the wall of the esophagus usually mean malignant involvement associated with it.

Here is a postoperative film, after the patient has had an anastomosis between the cardiac end of the stomach and the esophagus. Do you want to use this, Dr. Daniel?

DR. DANIEL: Yes, I would like to make a few comments on this operation which we are not always fortunate enough to be able to perform upon patients with inoperable carcinoma of the cardiac end of the stomach, or of the lower third of the esophagus. Occasionally, the fundus of the stomach is free of tumor and it is possible to displace the fundus into the thorax and to do a side-to-side anastomosis between the esophagus and the stomach. That is much better I think than the performance of a gastrostomy because the patient can then take some soft or perhaps solid foods as well as liquids by mouth, rather than through a gastrostomy, or even worse, through a jejunostomy tube. The other comment I want to make is to point out again that this patient's X-rays were suggestive to most of us of achalasia rather than carcinoma. Dr. Francis, do you care to comment on that any further?

DR. FRANCIS: Only, that it does not have the tapering end above the obstruction usually seen with cardiospasm.

DR. DANIEL: Is that particularly characteristic of achalasia in your opinion?

DR. FRANCIS: Yes.

DR. DANIEL: Dr. Maness, do you care to comment on this particular patient? You saw him before operation.

DR. GUY MANESS: I think the most important thing in the appearance by esophagoscopy for distinguishing between cardiospasm and malignancy is that the walls may be thick in malignancy and you are unable to pass the scope through into the stomach. In cardiospasm it is perfectly easy to pass the scope completely through the constricted area to visualize the stomach. Also, in cardiospasm, we usually see marked dilatation with a great deal

of esophagitis and retention of fluid and food.

DR. DANIEL: I would like to bring up one other point which is important and that is that the biopsy taken from the lower end of the esophagus did not show carcinoma. The man did have carcinoma; the reason the biopsy didn't show carcinoma was that the biopsy forceps could not be placed far enough down in the esophagus or the cardiac end of the stomach to obtain a piece of the tumor. The fact that a negative biopsy was obtained did not deter us from operating on the patient. The thing I would like to emphasize is that this man did have a carcinoma but the lesion looked as if it were benign and the tumor was not visualized with the esophagoscope or proved by biopsy. Therefore, any patient who has dysphagia, particularly a male and especially if the patient is past middle age, should be thought to have carcinoma. If one waits to see whether or not antispasmodics, or this or that or the other form of "conservative treatment" is to be beneficial to the patient, he may often wait until a cancer, which originally was operable, is no longer operable.

#### Case 2

DR. CATE: The next patient was a 32 year old white female who was admitted to the hospital on August 19, 1938. She had a history of 5 years duration of intermittent difficulty in swallowing both solids and liquids. She lost 60 pounds during that time. Her appetite, however, had remained excellent and she ate several times during the day in an attempt to satisfy it.

Physical examination was not remarkable. Esophagoscopy revealed considerable retention of both fluids and previously ingested food, with considerable evidence of esophagitis. The esophagoscope passed into the stomach without difficulty. Dilatations were done on three occasions with considerable relief of symptoms. The patient was last seen in 1939, at which time she was still having some difficulty, fairly well controlled with antispasmodics.

DR. DANIEL: Dr. Francis will you show the X-ray films?

DR. FRANCIS: This film shows quite definitely the difference between the obstructive type of deformity which we had in the previous case and in this individual. You notice the dilatation is quite marked



in the lower third, to the level of the diaphragm and it has a tapering conical shape. The conical tapering in the lower part, I think, is quite typical of cardiospasm. I don't mean to imply that it is absolutely diagnostic. I do not know of any sign which is absolutely diagnostic of cardiospasm and which distinguishes it by X-ray from cancer, but I do believe that this shows the general type of difference which we are apt to see. There is one other important feature. In the previous case the esophagoscope could not be passed through the obstruction; in this case it passed through very easily. That is another very helpful sign in differentiating obstruction with cardiospasm from the real obstruction by malignant tissue.

DR. DANIEL: We chose this particular patient because, at least to my relatively untrained eye, I thought this patient and the previous one looked a lot alike from the X-ray viewpoint. The first patient had an inoperable carcinoma; this patient did not have a carcinoma but had cardiospasm, or achalasia. Dr. Shull, would you like to comment on this?

DR. HARRISON SHULL: One thing about this esophagus which is impressive is that there is considerably greater dilatation in the esophagus than in the former patient. I would like to ask Dr. Francis if that is not a fairly important X-ray finding; if it doesn't suggest a considerably longer duration of obstruction than one might expect with carcinoma. However, this isn't nearly as marked as one generally sees in longer standing achalasia.

DR. FRANCIS: In my experience that is a good general rule to follow. However, the largest dilated esophagus I have ever seen was in a patient with carcinoma of the cardia of the stomach which secondarily invaded the esophagus and obstructed it. That is an exception rather than a rule. In general, by far the greater dilatation is present in cardiospasm rather than in carcinoma.

DR. DANIEL: Do you have any other comments, Dr. Maness?

DR. MANESS: We frequently see lesions in the upper portion of the stomach which

invade the walls of the esophagus and extend upward causing esophageal obstruction in the lower end, whereas, the mucosa in the esophagus remains normal. The important thing in diagnosis is to find out whether there is fixation of the esophagus or whether one can pass the scope. However, in that type of case it is almost impossible to get a positive biopsy.

DR. DANIEL: Many patients with achalasia will not get long-lasting relief from simple dilatation as did the patient shown here. In such a case, or when the esophagus is greatly dilated and atonic, a simple operative procedure can be carried out to permanently relieve the obstruction. Through a transpleural approach a longitudinal incision is made through the area of stricture and the opening in the lower esophagus and cardia of the stomach is closed transversely, in layers, with interrupted sutures much as was done in the Finney pyloroplasty. We feel that there is less risk associated with this operation than with dilatation when there is marked obstruction which has been present for a long time.

### Case 3

DR. CATE: The next patient was a 60 year old white male admitted to the hospital on March 6, 1947. He gave a history of progressive dysphagia for 3 months with substernal pain following meals and occasional regurgitation of food. However, he was still able to swallow solid foods with some difficulty at the time of admission. He was referred here immediately after a gastrointestinal series revealed a filling defect in the lower esophagus. He had lost 15 pounds.

Physical examination was not remarkable. Esophagoscopy revealed ulceration at the lower end of the esophagus just beyond the tip of the esophagoscope. Biopsy was thought to represent a benign lesion, possibly a polyp.

DR. DANIEL: Would you comment on these films, Dr. Francis? (Fig. 2.)

DR. FRANCIS: There is a small dilatation of the lower 2 inches of the esophagus with a smooth rounded shadow which apparently impinges upon and obliterates a part of the esophageal pattern. We cannot see the upper end of the stomach too clearly. This could be caused by tumor or nodes, or a lesion the exact nature of which I do not recognize.



DR. DANIEL: Do you think this X-ray film is suggestive of carcinoma?

DR. FRANCIS: No, it is not the usual picture of carcinoma. What we see in the esophagus here looks more like something extrinsic, causing pressure upon it, rather than an intrinsic lesion. The deformity is smooth and there is some mucosal relief seen over that shadow.

DR. DANIEL: This patient is here with us today. He did have a carcinoma which straddled the cardia. He had an ulcer crater about 4 or 5 cm. in diameter, about half of which was in the esophagus and about half of which was in the cardiac end of the stomach. He has done well, works every day, has no digestive difficulties and he is probably cured. I think the reason he is cured is because he had dysphagia for a fairly short period of time. He was seen by an internist here in the city who told him that he should come into the hospital at once for further investigation. He was operated upon; we found an early carcinoma of the cardiac end of the stomach and the cardiac half of the stomach and the lower third of the esophagus were removed. There was no tumor in the lymph nodes about the cardia. I think he is cured because of the astuteness of the internist who first saw him. He did not try any antispasmodics, as had been tried in the other patients we have shown, and he did not suggest to the patient that this might be a transient disorder which might be relieved by means not quite so drastic as a transthoracic exploratory operation.

DR. FRANCIS: This is a very interesting patient because of the type of deformity we see here. It is a very excellent lesson to us in that what looks benign may be a malignant lesion.

#### Case 4

DR. CATE: The next patient was a 64 year old white male who was admitted to the hospital July 23, 1946. For 2 years the patient had noted anorexia and there had been a weight loss of 7 pounds. However, it was not until 6 days prior to admission that he had definite difficulty with swallowing accompanied by regurgitation.

Physical examination was not remarkable except for signs of weight loss and a heart murmur. On esophagoscopy, a granular obstructing mass in the

midportion of the esophagus was visualized. Biopsy revealed epidermoid carcinoma. The patient went home against advice and returned 1 month later at which time he was operated upon. At operation, the tumor was found to be about 4 cm. in length, lying posterior to the arch of the aorta. The esophagus was resected and esophagogastric anastomosis was performed in front of the arch. Pathologic examination was interesting in that two different lesions were noted, one for which the operation was originally performed and another at the lower end of the esophagus. They appeared to be separate lesions, the esophagus between the tumors being entirely free of cancer. The patient's postoperative course was entirely uneventful.

DR. FRANCIS: We can see on the film normal esophagus to about the level of the fifth dorsal vertebra where the narrowing occurs. We have here obstruction with very little dilatation; in fact, the esophagus seems to be of normal size to the point of obstruction. From the X-ray alone, I think we would have to be suspicious that the lesion is probably a malignancy at this site.

DR. DANIEL: As Dr. Maness has pointed out, one is more apt to be able to obtain tumor tissue with the biopsy forceps in this region of the esophagus than in the region of the cardia. The anastomosis was effected at about the level of the arch of the aorta. In performing these anastomoses, one frees the esophagus from beneath the arch of the aorta and pulls it upward so that it is delivered lateral to the arch and the anastomosis is done in that area, because the anastomosis could not be performed beneath the arch of the aorta. This patient had another lesion in the wall of the stomach at the cardia with no demonstrable continuity between the two lesions. These tumors tend to metastasize along the lymphatics of the mediastinum and they are particularly apt to metastasize downward to the lymph nodes in the region of the cardiac end of the stomach. For that reason, it is important to remove the cardia of the stomach and the lymphatic structures which surround the esophagus with as much of the gastro-hepatic ligament as possible in one block. Dr. McSwain, would you comment on the degree of malignancy of these lesions? I believe that most of them look more benign in the esophagus than they actually are.

DR. BARTON McSWAIN: The squamous cell carcinoma of the esophagus?

DR. DANIEL: Yes.

DR. McSWAIN: Yes, most of them appear to be fairly well differentiated. However I think they are not as well differentiated as most squamous cell carcinomas, say of the skin of the face, because there is not as much keratinization, pearl formation, nor as many inter-cellular bridges. Although they are fairly well differentiated microscopically, I believe clinically they don't behave like well differentiated tumors, that is, they act more malignant than they appear to be microscopically.

DR. DANIEL: This adds emphasis to the importance of paying attention always to the one all important symptom of dysphagia. Most of these patients fall in the older age groups, isn't that correct, Dr. McSwain?

DR. McSWAIN: Sixty years plus.

DR. DANIEL: But they do occur in younger people. We have seen them in people in their early forties. These tumors occur more frequently in men, the ratio being about three or four to one. We have had several women here with carcinoma of the esophagus and some of these women have been fairly young. Esophagitis can occur occasionally and give rise to pictures somewhat similar to what we see here.

DR. MANESS: Yes, but the obstruction is usually not as marked.

DR. DANIEL: And not nearly as common as in carcinoma of the esophagus.

DR. MANESS: Occasionally, you will see a benign ulcer but they usually appear in younger individuals. They occur especially in persons who have indwelling feeding tubes for a long time.

#### Case 5

DR. CATE: The next patient is a 23 year old colored female who was admitted to the hospital in February of 1946. She was admitted 2½ weeks after having accidentally swallowed a glass of lye.

Dilatations were done before admission but had been unsuccessful in relieving the patient's symptoms. Following admission a gastrostomy was done but a pyloric stricture was subsequently demonstrated and it was necessary to do a jejunostomy. One year later the pyloric stricture was

circumvented by a gastroduodenostomy. In spite of the repeated gastric surgery, it was possible to bring the stomach into the neck and anastomose it to the hypopharynx at a later date. The patient has essentially normal gastro-intestinal function at the present time. (Fig. 3.)

DR. DANIEL: Many of you remember this patient. She had complete destruction of the esophagus from swallowing lye. The esophagus was completely occluded at its junction with the hypopharynx. We show her to stimulate some discussion of the frequency of benign strictures and also to demonstrate the fact that one can re-establish the continuity of the alimentary tract even where destructive lesions occur very high in the esophagus. This is not an easy thing to do but is possible and I think it becomes somewhat easier as we gain more experience in bringing the stomach or other intestinal loops high into the thorax. There have been in the surgical literature during the past three years several instances in which the stomach or loop of jejunum was brought, if not to the hypopharynx, almost to it, where it was anastomosed either with the hypopharynx or the cervical esophagus.

In this case, a Janeway type of tubed pedicle flap was constructed from the fundus of the stomach. This was brought upward through the posterior mediastinum into the neck. The anastomosis of the end of the gastric tube with the hypopharynx was then performed through an incision in the neck.

Now to discuss very briefly the problem of benign strictures of the esophagus. Dr. Maness, at what level are they more apt to occur? The situation here with complete obliteration of the esophagus is unusual.

DR. MANESS: The vast majority of them occur at about the level of the supra-sternal notch. There is slight narrowing of the esophagus as it goes into the thoracic cage in this area and most strictures occur at that level. The next most frequent site is at the lower end of the esophagus.

DR. DANIEL: What, in your opinion, is the proper method of handling patients who swallow lye, immediately after the accident occurs?



DR. MANESS: After the emergency treatment, we start dilatations very early, within two or three days after they have swallowed the lye. We use mercury weighted bougies and pass them almost daily for two or three weeks, and then two or three times a week for another two or three weeks. The intervals are gradually lengthened and the period of treatment will extend to about a year or two. If this fails, either retrograde dilatations or, if the stricture is small and resistant to dilatations, open thoracotomy and esophageal resection should be resorted to.

DR. DANIEL: Do you think that patients who swallow lye should have a gastrostomy done early?

DR. MANESS: Not in the majority of them. I think it depends on whether they are able to take food or not and the severity of the burn. If it is a very severe burn, I think it best to do the gastrostomy but the ones that aren't severely burned do very well with dilatations and feeding by mouth.

DR. DANIEL: Do you think it is advisable or inadvisable to place a Levine tube, or inlying catheter through the esophagus for feeding purposes in these patients?

DR. MANESS: I certainly wouldn't leave it in very long and I am not sure but that it is inadvisable.

DR. DANIEL: I think it is, too. If one needs a tube for feeding purposes it is probably better to do a gastrostomy.

DR. RUDOLPH LIGHT: Ten or fifteen years ago Dr. Brooks taught that the first thing that should be done to a patient who had swallowed lye was an immediate gastrostomy. However, things have changed now and that isn't considered to be of as great importance as he seemed to think then.

DR. DANIEL: Dr. Light, you have been somewhat interested in the question of the amount of esophagus that one could free from its surrounding tissues as regards preservation of its blood supply.

DR. LIGHT: I think Dr. McSwain is more interested than I. In the last year there has been a renewed interest in the arterial supply of the esophagus which is related to that problem. Swiggart and

Shapiro and their co-workers have done the main work on fresh cadavers. There seems to be general agreement that the esophagus is segmental in so far as there is a difference between the cervical, thoracic and abdominal portions of the esophagus. The two that have the poorest anastomotic supply are the cervical and the abdominal. The thoracic esophagus apparently has a pretty good segmental supply from the two esophageal arteries and the irregular number of branches that come from the intercostals. I know in the last year, Dr. Swenson has "freed-up" 80 per cent of the esophagus with successful anastomoses in the majority of his animals. It appears that in the dog there is a much richer anastomotic supply than there is in the human.

DR. DANIEL: Dr. McSwain, do you want to add anything, or disagree with anything that has been said?

DR. McSWAIN: Drs. Byrd, Haber and I have done a little experimental work on the esophagus but it wasn't on the blood supply. We used an extremely simple type of anastomosis between the esophagus and the esophagus, that is esophago-esophagostomy, using a Murphy button which is a pretty good type of anastomosis in the small intestine but not a very good type of anastomosis in the esophagus which doesn't have any serosa. We did this work in dogs and used half of them as controls and in the other half we used pleural pedicle grafts which were sutured around the anastomosis. We found that in those without the pedicle grafts most of the dogs died and in those with the pleural pedicle grafts, most of the dogs lived.

DR. DANIEL: Do you think that if you hadn't used the Murphy button most of them would have lived?

DR. McSWAIN: We used a very poor type of anastomosis to try to prove whether the graft was any good or not. If we had done a two layer anastomosis, both in the experimental animals and in the controls, the experiment wouldn't have been any good because they would all probably have lived anyway.

Now don't leave the subject of strictures without talking about DRANO.



DR. DANIEL: Tell us about DRANO, Dr. McSwain.

DR. McSWAIN: I want Dr. Maness to supplement anything I say about it. In the old days when a lot of people used to make soap out of lye, most of the benign strictures of the esophagus were due to the swallowing of lye. But now, since soap is so cheap, lye is not the responsible agent in most of these strictures, but rather a substance which is called DRANO which is used in many homes. I think a word of warning should be said about DRANO. DRANO contains sodium hydroxide (caustic soda), and it shouldn't be left around where children can get to it.

DR. MANESS: I think that is true; I am very bitterly opposed to having either lye or DRANO around the house where children can obtain it in any form, whether liquid or crystals. We had one case of stricture in which the child picked up the tin can the lye had been in, and which had been thrown out on the dump. Rain water had fallen into it and he drank the water out of it.

#### Case 6

DR. CATE: The next patient is a 7 year old colored female who was admitted to the hospital in January, 1950. Three weeks prior to admission she swallowed sulfuric acid. Gastric lavage was done as emergency treatment and the patient did well until 1 week prior to admission when she began to experience difficulty in swallowing. She was able to take only liquids by mouth at the time of admission. She had lost 10 pounds weight.

No oral or pharyngeal lesions were visualized at the time of admission. Esophagoscopy and roentgenograms revealed a narrow stricture which was thought to be about three inches above the diaphragm. Subsequently, a resection with an end-to-end anastomosis of the esophagus was performed.

DR. FRANCIS: Here we see a short stricture at about the level of the seventh or eighth dorsal vertebra. (Fig. 4.)

DR. DANIEL: It was possible to remove a segment about 1.5 cm. in length and bring the ends of the esophagus together without tension. An end-to-end anastomosis was performed in two layers with fine interrupted silk sutures. I think this is an operation that should be reserved for the patient with benign strictures. Some surgeons

have advocated it as a palliative procedure in patients with carcinoma. I believe that if one can remove the carcinoma it is better to remove all of the esophagus below the lesion and bring the stomach up and anastomose it to the esophagus, but it is a good operation for the short benign stricture. No dilatation of the esophagus remains after operation and the child is asymptomatic.

#### Case 7

DR. CATE: The next patient is a 64 year old white male who has had several admissions to this hospital for cardiac difficulties and who has a cervical diverticulum of the esophagus which empties well as shown by X-ray. The patient is able to empty it himself following meals by simple pressure over the left side of the neck.

DR. FRANCIS: There is a saccular dilatation at the level of the junction of the hypopharynx with the esophagus. (Fig. 5.) This is about the size of a chicken egg. The lateral roentgenogram is much more important than the postero-anterior projection because here you see the diverticulum lying behind the esophagus and it frequently obstructs the esophagus in front of it. This is the so-called Zenker's diverticulum and this is the usual site of esophageal diverticulum.

DR. DANIEL: Another term that is frequently applied to this type of diverticulum is the pharyngo-esophageal diverticulum. It always arises posteriorly at the extreme upper end of the esophagus and it always extends back behind the esophagus which is displaced forward by the sac. This fact should always be borne in mind by anyone who attempts instrumentation of the esophagus whether under direct vision or by any other means, because if one passes an instrument into the esophagus, he may pass it into the sac rather than down the esophagus itself. Is that correct, Dr. Maness?

DR. MANESS: It is very difficult to pass it down the esophagus.

DR. DANIEL: If one is not aware of the fact that dysphagia may be due to a pulsion diverticulum in the neck, and attempts instrumentation of the esophagus, the instrument may be pushed through the lower end of the sac down into the mediastinum. A

fulminating infection of the mediastinum may result from such an injury.

The treatment of these lesions is not difficult. Several years ago they were operated upon in two stages. At the first stage gauze packs were placed about the sac in order to produce an inflammatory wall. At a second stage, the sac was amputated and the wall of the esophagus closed with sutures. I think now these operations should be done in one stage. One can, without great difficulty, locate the sac and amputate it at its neck. The wall of the esophagus is easily closed with two layers of fine silk sutures. The problem of infection is small.

DR. R. H. KAMPMEIER: Dr. Maness mentioned benign obstructive lesions of the esophagus. Just for the record I would like to comment about a rare form. I hate to slight the spirochete! There have been four instances here in the past in which syphilitic obstructive lesions of the esophagus have been observed. One was in the mid-esophageal area and another was thought to be a carcinoma of the lower end of the esophagus. This latter patient succumbed and the gumma was proven at autopsy; the former responded to anti-syphilitic treatment and later dilatation. There were two subsequent ones—one I think of the diaphragm and one of the lower end of the esophagus—both proven at operation. These cases fall into the group of the middle age patients with obstructive lesions and I relate them merely to complete the discussion.

DR. DANIEL: Are there any other comments?

DR. FRANCIS: I think we should mention that deformities and strictures occur in scleroderma with dilatation of the esophagus. This has been recognized fairly recently. It is coming to be believed more and more that it is probably one of the earliest signs of scleroderma, so far as any gastrointestinal symptoms are concerned.

DR. DANIEL: There are other lesions which might be mentioned which are unusual and which cause dysphagia. Benign tumors are seen occasionally; the leiomyoma is probably the most common of these benign tumors but it is rare. Also, not infrequently dysphagia occurs in patients

with the paraesophageal hiatus hernia.

DR. BARNEY BROOKS: Because of the recent great advances which have been made in thoracic surgery, there should be a marked improvement in the results obtained in the treatment of cancer of the esophagus, if there were a wider appreciation of just a few simple facts.

Carcinoma of the esophagus is a tumor which produces symptoms comparatively early, and is most frequently located in the part of the esophagus most easily removed and permitting restoration of the continuity of the gastro-intestinal tract.

At the present time nearly all patients with carcinoma of the esophagus are seen by the surgeon after a relatively long duration of the disease. Thus not only may there be extension of the neoplasm to the point of inoperability, but also after successive periods of difficulty in swallowing solid food, a period of being able only to take semi-solid food, later only liquids and finally complete obstruction leading to marked malnutrition, there is a greatly increased operative risk.

If everyone, including practitioners of medicine, knew that any individual in the cancer age who noticed even a slight difficulty in swallowing a bolus of solid food should have a careful examination of the esophagus, I am quite sure there would be a phenomenal improvement in the results of the surgical treatment of this now dreadful disease.

DR. DANIEL: In summary, the most important lesion we have shown today is the carcinoma. It is most important at the present time because it is so frequently ignored, not only by the patient but by the first physician he consults. The first physician consulted by the patient is the most important doctor whom the patient with carcinoma of the esophagus, or of the cardiac end of the stomach ever sees. If he is cognizant of the fact that dysphagia is caused by carcinoma, the patient may have a chance of survival. If he is not aware of this, or if he is determined to treat patients with dysphagia for a period of time by watchful waiting, by the use of antispasmodics and perhaps by the use of dilatation, the patient will be lost.



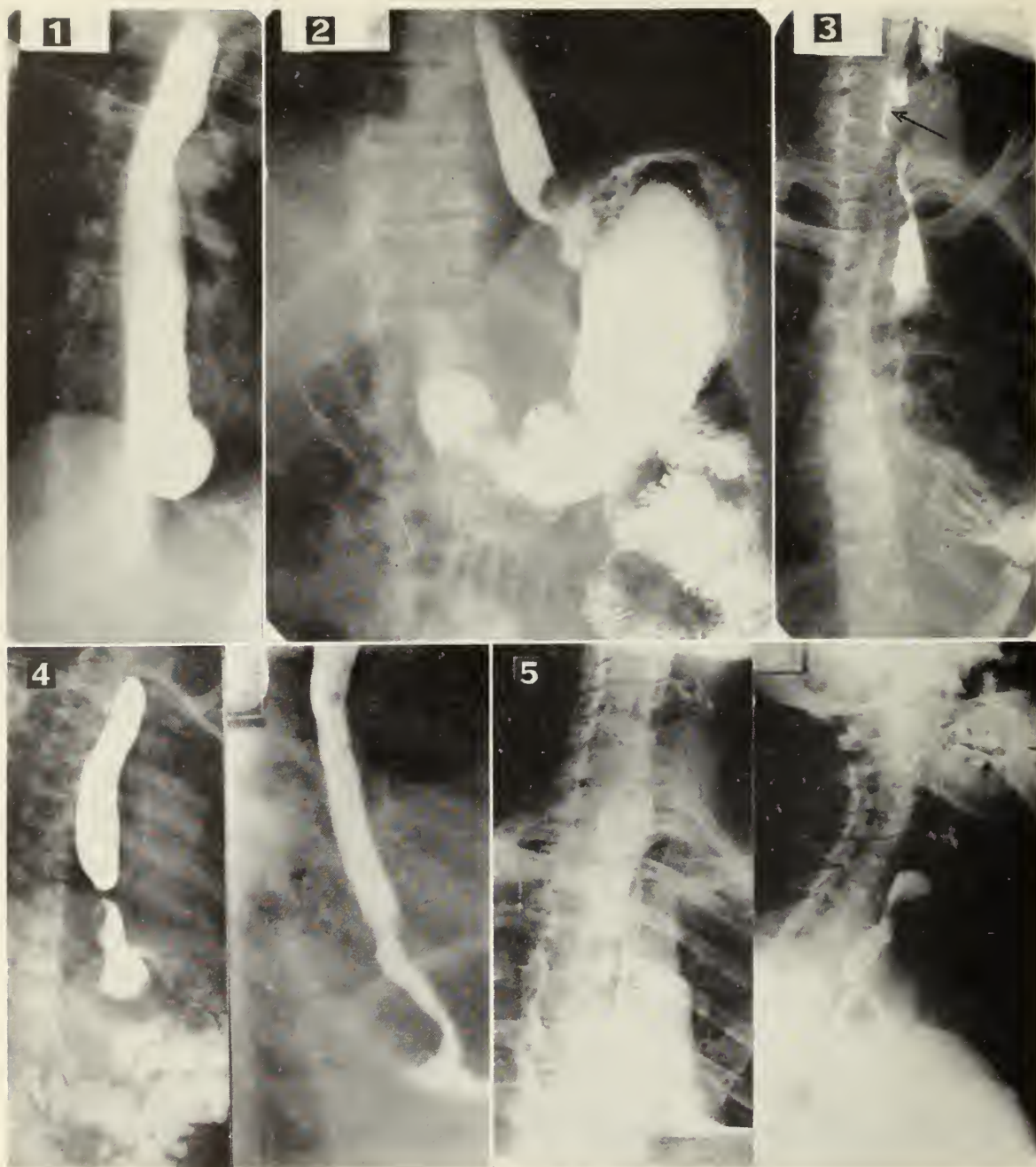


FIGURE 1, CASE 1.—Carcinoma of the stomach and esophagus. The smooth contour of the lower esophagus and the marked esophageal dilatation was suggestive of achalasia.

FIGURE 2, CASE 3.—Carcinoma of the lower third of the esophagus. The smooth outline of the tumor suggested a benign or extrinsic lesion.

FIGURE 3, CASE 5.—Postoperative film showing use of the stomach to replace the esophagus which was destroyed by lye. Arrow denotes point of anastomosis of stomach with the hypopharynx.

FIGURE 4, CASE 6.—Stricture of esophagus. A—Before operation. B—Following resection of esophagus and end-to-end anastomosis.

FIGURE 5, CASE 7.—Pharyngo-esophageal diverticulum in a man 64 years of age.



## BAPTIST MEMORIAL HOSPITAL CLINICAL PATHOLOGICAL CONFERENCE\*

Mr. H. D. C., a forty-one-year-old white male, was admitted to the Baptist Memorial Hospital on August 19, 1950, with principal complaints of weakness and wasting of the lower extremities. His health had been good until 1947, at which time he developed a ravenous appetite and gained fifty pounds over a period of a year. His weight gain had been most noticeable on the trunk and abdomen. About 2 years prior to admission he developed weakness of the legs which had been progressive. Diminished acuity of taste and smell had been observed approximately 1½ years ago. One year ago he had developed excessive thirst with increased urinary output and had noticed that the urine was lighter in color than normal. Eight months ago he developed inconstant low back pain, exaggerated by movement, which with weakness of the legs, made walking difficult. Six months before admission, glycosuria was detected and he had been maintained on a diabetic diet. At that time he also noticed hoarseness but had had no difficulty in swallowing. Abdominal striae had been noticed following the gain in weight. During the last several months he had lost approximately fifty pounds.

Physical examination showed the blood pressure to be 170/130, pulse 80, respirations 20, and temperature 98.6°. He was well developed and nourished except for wasting of all muscles of the lower extremities. His movements were slow and guarded because of fear of back pain. There were numerous purpuric spots on the dorsum of the hands and forearms. There was an old scar on the right temple said to have been the site of a skin cancer removed some eighteen months ago. Purplish striae were present over the abdomen. There was no lymphadenopathy. The heart and lungs were negative. The abdomen was protruberant. No solid abdominal organs were palpable. Neurologic examination revealed difficulty in walking because of back pain and bilateral leg weakness. There was reversal of the normal lumbar curvature. Back motion was limited in all directions; there was tenderness to percussion over the lower lumbar spine, with radiation into the flanks but no sciatic radiation. There was weakness of all muscle groups of the legs and thighs bilaterally and absence of tendon reflexes in the legs. Sensation to pin prick was impaired over the feet; there was some hyperpathic response to scratching the soles. Sensory loss did not involve nerve trunk or nerve root distribution with sufficient accuracy to be diagnostic. Lasegue's sign was weakly positive bilaterally. Sphincter tone was normal. Abdominal and cremasteric reflexes were intact. (There

was no urinary difficulty.) The upper extremities were normal neurologically aside from generalized weakness. The visual fields were grossly normal as were the fundi. The cranial nerves were intact.

Admission Laboratory Studies: The urine showed a specific gravity of 1.008 with one plus albuminuria. The blood revealed a red count of 4,410,000, Hgb. 13 Gms., and a white count of 7,200 with 77% segmented neutrophils, 6% band forms, and 17% lymphocytes. Blood Kline was negative. On August 21 the serum calcium was 11 mgms.%, serum phosphorus 2.8 mgms.%, and alkaline phosphatase 6.76 Bodansky units. On September 1 the NPN was 30 mgms.%, total serum protein 6.16 Gms.%, with an A/G ratio of 1.8 to 1. The hematocrit was 47% and the sedimentation rate (corrected) 25 mms. per hour. Direct eosinophile count on September 1 was 5 per cmm. Recheck on September 5 revealed 50 eosinophiles per cmm. Several urinalyses showed the highest specific gravity to be 1.012; albumin averaged about three plus. Bence-Jones protein was absent; on several examinations 40 to 60 casts per high power field with a few red and white cells were observed.

X-Ray Studies: Teleoroentgenogram—the heart, lungs, and aorta were considered normal. The lumbar spine revealed marked osteoporosis with multiple collapsed vertebra. Examination of the skull showed slight diffuse mottling suggestive of pathological osteoporosis or of discrete destructive areas, appearing to be more than would be considered normal. The pineal was calcified and in midline; there was bilateral calcification of the glomus of the choroid without shift. The sella was within normal limits. There was some decalcification of the posterior clinoids probably associated with generalized facial atrophy from the absence of teeth. No destruction or erosion of the petrous portion of the temporal bones was noted.

Four days after admission a lumbar puncture revealed an initial pressure of 18 cm. of water. After 10 seconds of jugular compression, pressures of 31, 26, and 22 were recorded at 10 second intervals. The spinal fluid protein was 274 mgms.%; no cells were present, and the serology was negative.

Treatment consisted of a diabetic diet and small doses of protamine zinc insulin. There was inconstant, mild glycosuria and insulin was discontinued 10 days after admission. Other therapeutic measures included calcium orally, testosterone intramuscularly and analgesics as necessary. Following the lumbar puncture absolute bed rest with mild hyper-extension of the spine was instituted with some subjective improvement. (Severe headache and nausea developed after the lumbar puncture.)

A recheck neurological examination on August 31 revealed no outstanding change except early choking of the optic discs and stiffness of the neck. On September 1 he began having epileptiform seizures of 4 to 5 minutes' duration. These attacks

\*From Baptist Memorial Hospital, Memphis, Tenn.

were characterized by retraction of the head, rolling upward of the eyes and loss of consciousness. Some of these attacks were observed by a neurosurgeon who described them as resembling brain stem or posterior fossa attacks. The patient's wife commented that his headaches seemed worse when he was on his back, and the seizures seemed to be precipitated by being turned from his side to his back. Ventriculography and craniotomy were considered but postponed in view of prolonged clotting time, increasing evidence of renal involvement, and widespread osteoporosis. During the first two weeks in the hospital daily temperature peaks of 99° to 99.6° were recorded. There was a gradual rise in temperature with the onset of the seizures, the temperature exceeding 100° during the last three or four days of life. He had several convulsive seizures daily during the last two or three days, along with confusion and sphincter incontinence. Terminally, he exhibited hypotension, cyanosis, tachycardia, irrational speech, and marked restlessness prior to death on September 6.

**DR. FRANCIS MURPHEY:** I will attempt to go over the pertinent points in this history, the physical findings, and the laboratory data. The past history as recorded has no special significance, but I have just been told that five years ago this patient had a severe pulmonary hemorrhage. He survived and lived five years without other evidence of pulmonary disease. It is highly unlikely that he could have had carcinoma of the lung for this length of time. There is no evidence of tuberculosis or bronchiectasis in the X-rays so the cause of his pulmonary hemorrhage is not apparent to me.

Otherwise, he was in good health until two years ago when he developed a ravenous appetite and gained fifty pounds of weight mostly in the trunk. A ravenous appetite can develop into a fair number of conditions, but it is unusual for a patient to gain weight under such circumstances except in a few conditions. These are the so-called Cushing's disease or syndrome, diabetes mellitus and hyperchlorhydria.

Another interesting feature of his illness was the development of progressive weakness in the legs. I will refer to this in a moment.

A diminished acuity of the sense of smell is present in various lesions which affect the cribiform plate. He might also have any type of neurologic lesion which involved the uncinate gyrus or olfactory tract. I

assume that the man actually had no real loss of taste because the loss of the sense of smell is so frequently mistaken for the loss of the sense of taste.

The other symptoms, namely, severe thirst and increased urinary output developed soon and, as you know, is characteristic of either diabetes insipidus or diabetes mellitus.

Eight months ago he developed inconstant low back pain and the weakness of his legs became more marked. One would think in light of his increased thirst and polyuria and development of diabetes mellitus that this might be a true diabetic neuritis. However, pain in his back makes this consideration somewhat doubtful as the cause of his weakness.

Later, glycosuria was found and he was maintained on a diabetic diet. Whether this really means true diabetes, I will discuss later.

Hoarseness also developed, but this was probably of no neurologic significance because he failed to develop symptoms referable to the other lower cranial nerves.

Abdominal striae were noted following gain in weight. Of course this occurs in pregnancy, but this patient was a man. It occurs in anyone who gains a lot of weight and then loses it. It develops in endocrine disturbances, particularly hyperactivity of the pituitary gland, adrenal cortex, or ovary, as the case may be.

He obviously had hypertension, although mention was made only of one recorded blood pressure reading but I assume he continued to run an elevated pressure.

He apparently had a considerable amount of atrophy in the muscles of his lower extremities, and it is noted that his movements were slow and guarded because of fear of pain. This suggests some type of mechanical lesion compressing the nerves or cauda equina more than it does a tumor. As you know, patients with tumors frequently get relief by getting up and walking around; whereas, individuals who have a ruptured disc or some type of fracture or mechanical lesion in the back compressing the nerves get relief from lying down. This man also had a reversal of his lumbar



curve, and that is important because it practically never occurs in a true primary intraspinal tumor. Although one cannot dismiss this possibility on such a basis, it makes it highly unlikely. A reversal of the normal lumbar curve indicates either a kyphosis from some destructive lesion or an irritative lesion such as a ruptured disc or some other lesions of this type.

Apparently he had a definite loss of muscular movement of the legs, but the loss of sensation was not nearly so definite and apparently no true sensory level could be made out.

At this point, we should consider the possible cause of this patient's neuropathy. As I said above, he apparently had diabetes and could have had a diabetic neuritis. As we learned later, he had a severe osteoporosis with collapse of the vertebra, and it is possible that he had some compression of the cauda equina or that the nerve roots were compressed as they emerge from the intervertebral foramina. The fact that the sphincter tone was normal suggests that neither the cord nor the cauda equina were involved, and that this was either a root compression or a peripheral nerve lesion. The spinal puncture may throw some light on this.

It is noted that he had some purpuric spots, and I will discuss this later. Some of the laboratory findings show a low urinary specific gravity throughout his stay, and it is assumed that he either had a marked increase in output of urine (although there is no intake or output recorded), or severe kidney disease, either one of which could produce this change. The red count was normal. The alkaline phosphatase was abnormal, although only slightly so, and this could be the result of destructive disease of bone with regeneration with the possible exception of prostatic malignancy. At one time I considered the possibility that his bone changes might be due to multiple myeloma, and this is still a possibility in spite of the fact that his protein was low and his A/G ratio was normal. The total eosinophile count was low, and may be of considerable significance. We know that when ACTH or cor-

tisone is given, the total eosinophile count drops. It is possible that either a hyperfunctioning tumor of the pituitary or adrenal gland might conceivably produce this change, too.

Because of albumin and casts, he must have had a severe kidney lesion in spite of one normal NPN. In the light of subsequent events, it is probable that this was nephrosclerosis but, of course, could be the result of a pyelonephritis or some generalized disease such as periarteritis nodosa, which incidentally could also have caused hypertension and peripheral neuritis as well as the terminal state.

The X-rays, as far as I am concerned, are non-specific. There is more mottling than one would expect in hyperparathyroidism, Cushing's disease or simple idiopathic osteoporosis. To me, the type of osteoporosis which he had is puzzling.

It is noted that he had an increased spinal fluid pressure. Pressures of 31, 26, and 22 were recorded taken at ten second intervals, and I would like to ask whether this really means that he had a spinal fluid block. It is true that these pressures could occur in the presence of a block if he were coughing or straining; what about that? If he had a partial or complete block, it could explain his spinal fluid protein of 274 mgms. per cent, which is very high. However, this protein could exist in the absence of a block in a patient with diabetic neuritis or a Guillain-Barré syndrome. However, the progressive nature of this neuritis is such that in all probability a Guillain-Barré syndrome can be ruled out.

It is noted that he continued to have inconstant mild glycosuria, but apparently this was pretty well controlled by diet because insulin was discontinued. It is noted that only one blood sugar of 127 mgms. is recorded and this, of course, does throw some doubt on a diagnosis of diabetes mellitus although this may have been after insulin.

He then developed choked discs and stiff neck and began to have convulsions. There was no other change until a few days later when he began to go downhill with evidence of a peripheral vascular collapse.



There are many things that one must consider in discussing the differential diagnosis. It is perfectly apparent that he had hypertension. It is also probable that he had diabetes mellitus, and there is no doubt that he had abdominal striae, osteoporosis, some type of neuropathy, and a questionable spinal fluid block. There is no doubt that all of these symptoms and signs could be explained on the basis of one disease, namely, Cushing's syndrome. It fairly well fits everything including the development of choked discs and stiff neck which could occur in the malignant phase of hypertension which is so often the terminal state of Cushing's syndrome. There is no way, in my opinion, of determining from this record whether it may be primarily a basophilic adenoma of the pituitary, if such a thing really exists, or whether it is on the basis of an adrenal cortical tumor.

There is no doubt that some of these changes could be produced by multiple myeloma and that he might have had hypertension and mild diabetes along with it. Or, this could be a perfectly typical malignant hypertensive vascular disease with the other diseases which I have just mentioned. It has been called to my attention that I failed to discuss the purpuric spots. This, of course, does occur in Cushing's syndrome as well as in many others. I suppose that if he had multiple myeloma, crowding out the bone marrow would give him a true thrombocytopenic purpura as a result of the decreased formation of the megakaryocytes. There is one other comment I want to make about osteoporosis. It did not appear to be that of Paget's disease because in the first place Paget's disease occurs more frequently in the extremities and pelvis than in the spine, and in the second place, it does not have the proliferating appearance of Paget's disease.

In conclusion, I believe that the one disease which fits this picture is a Cushing's syndrome, but as I mentioned before, others might combine to produce this picture.

DR. BLAND CANNON: I would like to make a comment concerning the spinal fluid examination, especially in reference to the dynamics. Of course, Queckenstedt's

test is very seldom ever indicated in spinal punctures unless one suspects an intraspinal lesion. A pressure of 18 cm. of water is a bit high for one to do a Queckenstedt test unless he is sure that a spinal canal lesion exists. If one compresses the jugular veins bilaterally for ten seconds, there should be a rather fast rise to, I would say, double or triple the normal recording of pressure, and in the first ten seconds after release, there should be a return to normal. So in order to record the actual partial block on this case the ten second interval readings were taken. The fall to 26 which is only 5 cm. in ten seconds is certainly inadequate, and to 22, which is another 4 cm., is further evidence that a partial block exists. My interpretation of this Queckenstedt test was that there existed a partial block of the flow of spinal fluid.

DR. MURPHEY: Then one could say that the probability is that the weakness and sensory difficulty was the result of compression either of the cauda equina or possibly higher up in spite of the evidence of the reflexes.

DR. DAVID SCHEINBERG: I would like to ask Dr. Murphey if an adrenal cortical tumor with malignancy would fit into the picture explaining the weakness of the legs; I would also like to ask him if he thinks that perhaps hyperactivity of the parathyroids as a result of the adrenal cortical tumor could explain the disturbance in the chemistry of the calcium and phosphorus and the osteoporosis of the general skeleton.

DR. MURPHEY: I don't think that there is any doubt that both could occur. A good many years ago when Dr. Cushing was writing his original paper on the syndrome, I recall that he found some cases in the literature which had evidence of hyperparathyroidism and tumors in both the adrenal and parathyroid glands. Hyperparathyroidism can occur as a result of a basophilic adenoma or an adrenal cortical tumor by simple stimulation of the parathyroid, but I understand that Albright prefers to base the osteoporosis on increased output of the S or sugar hormone which I know nothing about. So far as a malignant adrenal cor-

tical tumor is concerned, I am sure that they could also explain his difficulties and the peculiar appearance of the osteoporosis.

DR. CANNON: Now let's suppose that there was no block demonstrated in the spinal fluid examination. Dr. Murphey, do you consider that ordinarily in diabetic neuritis 274 mgms. of protein is above what could be expected in those cases?

DR. MURPHEY: I have never seen it that high, but I am not surprised by anything now. These people have degeneration of the nerves and cord as a result of severe arteriosclerosis in their cord. I do not think it is unusual to see protein over 100 mgms. per cent in individuals who have just plain arteriosclerosis, but I would certainly agree with Dr. Cannon that I have never seen one this high.

DR. J. F. HAMILTON: I wish to make some remarks about this osteoporosis. If this patient had a hyperparathyroid tumor, although we only see one report of a serum calcium and phosphorus, I would certainly think that his calcium ought to be higher than 11 mgms. per cent because in my laboratory we count a normal anywhere from 9 to 11 mgms. The product of the calcium and phosphorus in this case is a little low, and in order to place that defect, I think it is in the fact that his phosphorus is a little low rather than his calcium being a little high. I think the calcium is normal.

DR. MURPHEY: As far as I am aware, both are within normal limits, but that would not rule out the possibility of an excess of the so-called S-hormone of Albright being produced by the pituitary or adrenal tumor and causing the osteoporosis. I believe Albright calls this type the so-called fish vertebra where the nucleus pulposus expands as the cortex of the adjacent vertebra gives way. It was also noted in this record that he was treated with testosterone so apparently someone else thought that this might be the cause of his trouble.

DR. MERLIN L. TRUMBULL: We omitted mention in the protocol of a skin lesion that was excised the day before death. Dr. Strain, would you like to explain why that was removed?

DR. S. FRED STRAIN: I saw this man a few days before he died, and I was very much interested in trying to determine what was the cause of his death, which I knew was coming soon. I found that he had over his right temple a scar which had rather obviously resulted from X-ray therapy, and his relatives told me that it was caused by a malignant tumor which had been removed by X-ray a few years ago. The thought occurred to me that this malignant tumor might have been a melano-sarcoma and that his general disease was due to generalized metastases from it and involved more than just the pituitary. I examined the skin for nodules which are usually present in that condition, and I found on his left thigh one about 1 cm. in diameter. It was under the skin, fixed, hard and non-fluctuant, and I thought that probably there is my evidence for a metastatic tumor. I asked a surgeon to remove it.

Now, the interesting thing to me about this case is that we know that by destroying or injuring the hypothalamus in rats a marked obesity results because the rat does not have any more appetite control and will eat excessively. Thus he becomes much larger than his litter mate who is allowed access to the same amount of food. This is probably the cause, or at least it points to injury of the hypothalamus, of his increase in weight and appetite. Then, of course, the hypertension and the diabetic tendency, with the osteoporosis mean an involvement of the pituitary resulting in a Cushing's syndrome. The fact that his heart was not enlarged and he was a relatively young man would make you think that this hypertension was not of long duration and probably was not the result of an old chronic glomerulonephritis. Now, another thing, he was a rather young man, only forty-one and therefore, one would not consider his having much arteriosclerosis. His diabetes evidently was of short duration because there is rarely a gain in weight on the development of diabetes, and it is probable that diabetes was not responsible for his voracious appetite.

DR. MURPHEY: I want to say one thing about Dr. Strain's comments. The injury



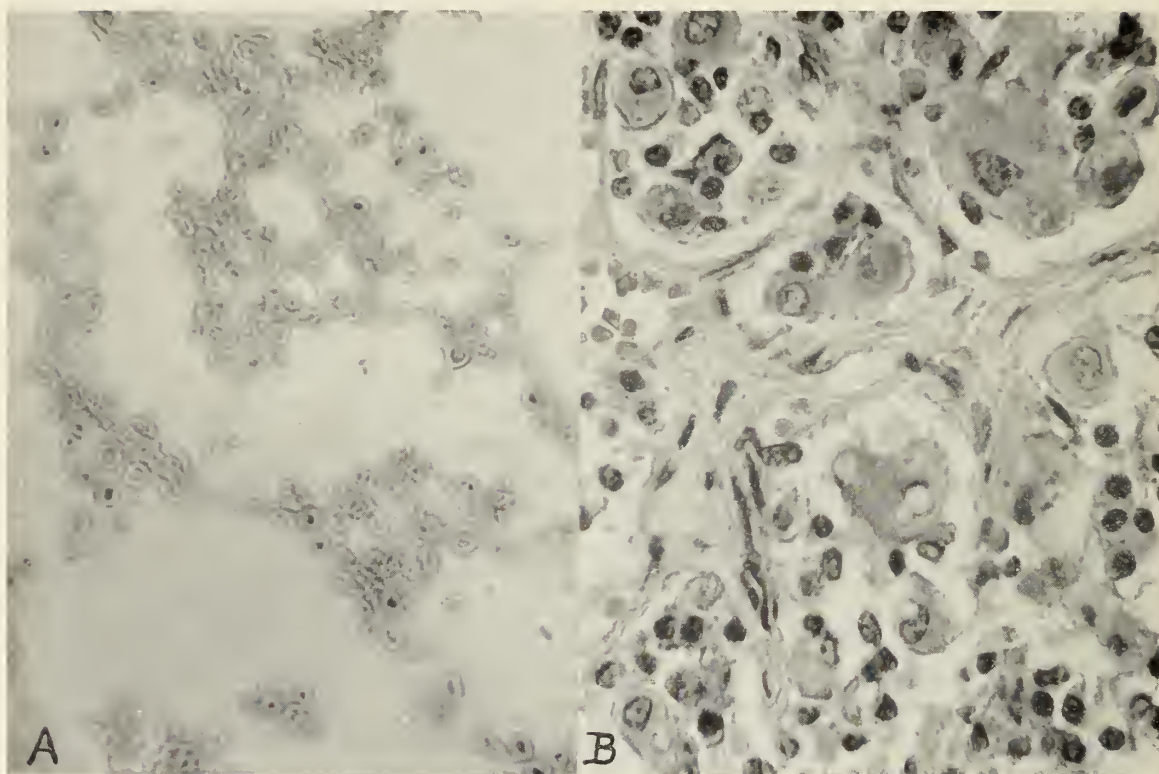


FIGURE 1. A. *Cryptococcus* organisms in meninges. Note absence of inflammatory cellular reaction (x400). B. Hyalinization and vacuolization in swollen basophilic cells of anterior pituitary (x400).

to the pituitary or hypothalamus does produce increase in fatty tissue over the trunk but, so far as I am aware, it does not produce a voracious appetite. It would seem to me that this whole picture of his pituitary state is one of hyperpituitarism rather than hypopituitarism. Another reported point was that the sugar tolerance is decidedly decreased in hyperpituitary states and increased in hypopituitary states. One would certainly not expect to find diabetes on the basis of a hypopituitary state.

DR. L. C. SANDERS: Dr. Albright, in discussing glycosuria in Cushing's syndrome, expressed the opinion that a large part of the blood proteins were converted into carbohydrates. This could explain the presence of hyperglycemia in this syndrome. Certainly under these circumstances there would be expected a hypoproteinemia as well as a hyperglycemia. The findings in this case correlate with Dr. Albright's observation.

DR. TRUMBULL: Examination of the skin lesion removed just prior to death proved it to contain marked numbers of

*Cryptococcus neoformans*. Characteristically, there was very little inflammatory reaction to these organisms. At autopsy this patient presented a diffuse meningitis due to the same organism (Figure 1A.) There was partial destruction of the pituitary with actual invasion of it by this torula organism. The pituitary, furthermore, showed the classical, so-called Crook's change of hyalinization and vacuolization of the cytoplasm of the basophilic cells (Figure 1B). There was mild diffuse enlargement of the adrenals, the combined weight of which was 28.5 grams. The vertebral bodies, especially in the lower thoracic region, were markedly osteoporotic with several in the lower thoracic region being collapsed. In the left lung was a single, circumscribed nodule 2 cm. in diameter which proved to be chiefly caseous material with very little surrounding reaction except for an occasional narrow zone of Cryptococcic organisms within macrophages, which were in adjacent alveoli. The testes showed atrophic tubules.

We have been unable to locate a prior



case of Cushing's syndrome apparently produced by *Cryptococcus neoformans*. According to the pathogenesis of this syndrome as advanced by Heinbecker and Pfeiffenberger<sup>1</sup> we assume that the efferent tracts from the hypothalamic nuclei were probably interrupted by the same destructive process which we could demonstrate within the pituitary. Sections through the supraoptic and paraventricular hypothalamic nuclei were negative. The explanation of the development of Cushing's syndrome in the present case would be difficult to make by any other explanation than that which these authors have advanced since our case has no pituitary, adrenal, or ovarian tumor. There is an increasing body of evidence pointing toward the probability that basophilic adenomas of the pituitary are not the primary cause of Cushing's syndrome. In our case there was no such tumor, but there was a relative increase in the number of basophilic cells. Heinbecker and Pfeiffenberger<sup>1</sup> feel that the primary disturbance in the syndrome is an endocrine imbalance characteristic by the over action of the eosinophilic cells and a depression of the function of the basophilic cells of the hypophysis. They interpret the

changes in the basophilic cells as degenerative and state that their function is probably depressed rather than augmented, as most authorities have held. Depression of the basophilic cell function results in a depression of the thyroid gland and a failure of the maturation of the seminiferous tubular cells of the testis. This testicular atrophy was noted in our case. The osteoporosis similarly develops through removal of the control on the parathyroid glands by the depressed function of the basophilic cells of the pituitary. On the other hand, the augmented function of the eosinophilic cells leads to stimulation of the adrenal cortex, the androgenic cells and renal tubule cells, and depression of the islet cells of the pancreas. Such an interpretation of the pathogenesis does appear to explain at least most of the signs and symptoms of Cushing's syndrome. Experimentally these same authors produced in the dog many of the bodily changes of Cushing's syndrome either from denervation of the entire neural hypophysis or interruption of afferent pathways caudal to the paired paraventricular nuclei.

DR. MURPHEY: The only known effect of cutting the stalk to the pituitary in the human being is diabetes insipidus. This was done by Dandy a good many years ago on an individual, and her only abnormality thereafter was a diabetes insipidus.

<sup>1</sup>Heinbecker, P., and Pfeiffenberger, M., Jr.: Further Clinical and Experimental Studies on the Pathogenesis of Cushing's Syndrome; *Am. J. Med.*, 9:3, 1950.

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**Arruga, H., Some Conclusions Based on Two Thousand Cases of Retinal Detachment. *Am. J. Ophth.*, 33: 1964, 1950.**

The first aid in suspected or diagnosed retinal detachments should consist of a binocular dressing. Retraction of the retina is the principal factor in the mechanism of the detachment. The prognostically important factors are extent and duration of the detachment, size of the tears, improvement following bed rest and the general condition of the patient. A detachment with one small tear and a duration of two months is easier to cure than another detachment with a giant tear and a duration of only one week. Detachments due to disinsertions do not improve much on bed rest. In such cases the barrage should be placed a considerable distance back of the disinserted retinal edge, in a

zone where the retina is fairly close to the choroid.

In the treatment of ordinary tears, the applications of the high frequency current should be made sparingly and be placed accurately, under constant ophthalmoscopic control. Flat detachments do not require any drainage. For detachments which are flat at the site of the tear (above), but markedly elevated below, Arruga recommends one small puncture in the latter region. In detachments with marked elevation in the region of the tear he also makes one small puncture and injects air into the vitreous. Vortex veins must be avoided with the utmost care. The period of postoperative bed rest and binocular dressings depends upon the severity of the case.

(Abstracted by Robert J. Warner, M.D., Nashville, Tenn.)

# President's Message

## A RESUME OF THE POSTGRADUATE COURSES IN TENNESSEE



DR. MONGER

In 1936 the Committee on Education conceived the idea that a Postgraduate Instruction Course in different subjects would be very beneficial to the doctors of Tennessee. This committee at that time consisted of Dr. J. Marsh Frere, chairman, Chattanooga; Dr. R. B. Wood, Knoxville; Dr. D. W. Smith, Nashville; Dr. H. B. Gotten, Memphis; Dr. W. O. Baird, Henderson; and Dr. J. M. Lee, Nashville.

The source of the funds for this course was the most important item. The Commonwealth Fund became interested in this program and very generously agreed to give \$12,000, the Tennessee State Medical Association \$1,500, the Tennessee Public Health Department \$1,500, Vanderbilt University \$500, and the University of Tennessee \$500. Estimated fees were set at \$500. Mr. Kibler was selected for the job as field director and we know that he has done an excellent job.

The state was organized into nine districts and the length of time to cover the state was two years. This course is now in its thirteenth year.

The first course was in Obstetrics in 1937-1938. The committee was very fortunate in securing the services of Dr. Frank E. Whitacre, assistant professor of Obstetrics, University of Chicago. He proved to be a well-trained, experienced clinician and practitioner. A total of 1,334 physicians attended this lecture course, and there were 9,278 lay people who attended lectures.

The second lecture course was in Pediatrics in 1939-1940. The committee was again fortunate in securing the services of another good teacher and practitioner in Dr. Willis H. Thompson from Minneapolis, Minn. There were 1,028 physicians attending these lectures and 6,841 from the lay groups.

The committee was most fortunate in securing Dr. Robert P. McCombs for the course in Internal Medicine, 1941-1942. He was an excellent teacher and an expert diagnostician for those cases in which he was called in consultation. There were 1,304 physicians and 1,350 lay people attending his lectures.

Surgical Diagnosis was the next course in 1943-44, and the committee secured the services of Dr. J. R. B. Branch, Professor of Surgery and Gynecology, National College of Medicine, Shanghai, China. Dr. Branch, also, proved to be an excellent teacher and diagnostician. There were 1,406 physicians who attended his lectures and 260 from the lay group.

Gynecology, 1945-46, was the next subject and Dr. Branch had done such an excellent job as instructor in Surgical Diagnosis that the committee secured him for this course. This again proved to be a very popular course as 1,406 physicians attended and 1,521 laymen.

The committee selected Dr. Lyndon E. Lee from Ann Arbor, Mich., for instructor in cancer in 1947-48-49. His lectures, diagnoses and numerous consultations were most interesting. The enthusiasm coming from his lectures was rewarded by the American Cancer Society's giving the State Cancer Committee \$5,000 for a follow-up course on this subject in 1950. Attending his lectures were 1,391 physicians and 2,023 lay people.

The present course in psychiatry is now about half completed and of the six circuits finished, 633 physicians and 800 lay people have attended. The committee selected Dr. Ralph P. Townsend from Yonkers, N. Y., for this course.

We should give all our efforts for these courses because it is a plan to bridge the gap between the time we leave medical school or the time of our textbooks were published, and our own teacher trained; and the results of continuous research. These courses do not require us to leave our practice for a period of time in order to acquire it. They are also a convenience for the public, for while we are keeping up with our own studies, we can at the same time continue to serve the public, and in the light of our newly acquired knowledge, do a better job of giving correct diagnosis and better treatment to our patient.

Congratulations, Mr. Kibler, to you and the various committees for the fine job you have done.

*Ralph H. Monger M.D.*



# THE JOURNAL

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FEBRUARY, 1951

## EDITORIAL

Notice—See "Special Notice," page 78.

### TREATMENT OF ANEMIAS

The physician is offered so many products for use in the treatment of anemias that he may be a bit confused in which to choose for a given patient.

It therefore is necessary that a correct diagnosis of the type of anemia be established first so that it may be treated properly and with the least expense to the patient. In many instances treatment with several materials ("shotgun" preparations) is instituted resulting in much greater expense to the patient than is justified.

The great majority of the anemias encountered by the physician are due to blood loss or to decreased blood formation. The hemolytic anemias are only occasionally encountered and there are some still more rare anemias. The classification of anemias morphologically has the advantage of often clarifying the cause and therefore indicating the treatment. Thus we may think of the *normocytic* anemia of acute blood loss, the *hypochromic, microcytic* (small, pale cell) anemia of chronic blood loss and

the *macrocytic* (large cell) anemia of defective formation of the pernicious anemia type. The most accurate methods for arriving at such a diagnosis by laboratory methods is by the use of hemoglobin determinations (other than by the Tallqvist's method) and a *packed cell volume* (PCV), the spinning of oxalated blood in the Wintrobe tube at 3,000 r.p.m. for 30 minutes.\* Red cell counts, even in the best of hands, are notoriously inaccurate but may be performed with sufficient accuracy to be utilized in conjunction with the PCV in the calculation of the size of the red cells.

In acute blood loss, as in obstetrical complications or hemorrhage from a peptic ulcer, the hemoglobin will be lowered and the cells will be of normal proportions as shown by the PCV. Transfusion may be the main method of treatment, depending upon the degree of anemia.

The most common form of anemia is the hypochromic, microcytic type due to chronic blood loss not counterbalanced by adequate iron stores or intake. This is found most often in women, who lose about 30 mgm. of iron at each normal menstrual period. Each pregnancy means supplying iron to the fetus and a blood loss at the puerperium. The fetus robs the mother of 2 mgm. of iron daily (a total of about 560 mgm. of iron). The loss of iron in normal labor is 80 mgm., doubled if episiotomy is done. The woman, then, who has pregnancies at frequent intervals is subject to this type of anemia. The woman bleeding from a fibroid uterus, and the menorrhagia and metrorrhagia of the menopause are also very common causes of the small, pale cell type of anemia. In either sex this type of anemia may develop in the presence of persistent bleeding from hemorrhoids or a peptic ulcer. (Obviously the oozing from a carcinoma in the gastrointestinal or genito-urinary tracts also may be the cause of hypochromic anemia.)

The treatment of hypochromic, microcytic anemia, *other than treatment of the cause*, consists essentially of the re-estab-

\*Kyle, J. Warren and Richmond, Sara Grace: The Use of the Wintrobe Hematocrit Tube in the Office Laboratory, this issue, page 51.



lishment of sufficient iron stores to permit adequate hemoglobin formation. Iron therefore, is the treatment of choice, and liver extract, vitamin B<sub>12</sub>, folic acid, etc., offer nothing. Anemia of this type may be of such severity that initial transfusions may be wise, as when the hemoglobin falls below 6 Gm. The efficacy of plain, cheap ferrous sulphate by mouth in this anemia has been established without any doubt. There is no virtue in using injectable iron nor in adding copper or molybdenum to the simple and effective ferrous sulphate.

Macrocytic or large cell anemia of the pernicious anemia type is actually a deficiency anemia in that the absence of an essential factor in the wall of the atrophic upper gastro-intestinal mucosa prevents the absorption of a second factor from the food. This factor appears to be vitamin B<sub>12</sub> which is identical with the erythrocyte maturation factor stored in the liver. This factor is necessary for bone marrow erythropoietic activity. Its absence prevents normal maturation of the red cell which is halted in the megaloblastic stage. Here iron is of no help. Instead the anti-anemic principle, which is lacking, must be supplied. Liver extract, either the crude or the refined, folic acid or vitamin B<sub>12</sub> are effective. Degenerative changes in the spinal cord (combined system disease) require that either large amounts of liver extract or vitamin B<sub>12</sub> be used. Folic acid is not protective against neurologic disease.

The less common macrocytic anemias of sprue and of pregnancy may be treated in the same manner though both may respond best or only to folic acid.

Of the hemolytic anemias, congenital hemolytic jaundice is best treated by splenectomy. For those secondary to poisons or toxins, the elimination of such substances is of course the essential treatment. No specific therapy is available for an inherent abnormality such as the hemolytic sickle cell anemia. The aplastic anemia of the toxic depression of bone marrow or its invasion by metastatic malignancy may be treated only by transfusions. The anemia accompanying chronic infection, rheumatoid arthritis, chronic renal failure and the

like responds little if any to any form of anti-anemic treatment.

A few simple laboratory procedures, a good history and a little thought will classify the great majority of anemias and provide a basis for rational treatment. Often a physician reasons that a "shotgun" prescription will cover the field just as satisfactorily as specific treatment, without worrying too much about the diagnosis. This contains several *grave* fallacies.

In the first place the "shotgun" prescription all too often contains insufficient quantities of what is needed to treat the anemia of either of the two major types.

Secondly, this is very costly, since the patient is buying possibly several substances when he actually needs only one, thereby wasting the rest.

Lastly, a correct diagnosis has important implications. *The diagnosis of hypochromic, microcytic anemia demands finding the cause of blood loss and its correction.* This might even be an operable carcinoma. A diagnosis of the macrocytic anemia of the "pernicious" type puts the physician on guard to recognize any symptom of neurologic involvement as the result of inadequate treatment.

R. H. K.



#### COMMUNICABLE DISEASE REPORTING

The busy doctor tends to become careless in reporting to the State Department of Public Health his cases of communicable disease; yet this is the only method by which trends in an increase or decrease of these diseases may be gauged. Such reporting offers a base-line for disease incidence which will permit the quick recognition of any abnormal incidence at a future date.

This last point is emphasized by its importance in Civil Defense. In the recent publication on the subject of U. S. Civil Defense\* a chapter is devoted to Biological and Chemical Warfare Defense. Here in the discussion of bacterial warfare deliv-

\*Health Services and Special Weapons Defense, U. S. Government Printing Office, Washington, D. C., 1950.

ered directly by the enemy, or through sabotage it becomes evident that local and State Health Departments will be the first to recognize an abnormal incidence of a communicable disease. However, this is possible only if a background of normal incidence has been established.

The individual physician has as his duty then, the reporting of communicable diseases in his patients so that the onset of an epidemic may be recognized at the earliest possible date.

R. H. K.



### DOCTORS VS. ANTIVIVISECTIONISTS

In the Florida political campaign which led to the defeat of former Senator Pepper, it was shown that physicians as individuals may hold a balance of political power which is to be reckoned with. Since this episode much has been made by critics of the medical profession, especially by labor union publications, of the use of this balance of power for selfish purposes.

Therefore all doctors should be aware of the effectiveness of this same political power in fields where even the most biased critic would be hard put to find an iota of a selfish nature. The defeat of antivivisectionist candidates on November 7 points this up. It seems very probable that the efforts of physicians, with the organization of allies, have defeated politicians in Baltimore, Los Angeles and in Illinois.

To the medical reader it is unnecessary to point out the need of animals in undergraduate teaching and in research. However, the physician not connected with a medical college probably has little concept of the difficulty of obtaining such animals in certain cities and states. The condition is critical and in certain areas a "black market" in dogs has developed. In other medical centers it has been necessary to buy dogs out of the state. All this while the city dog pounds are killing off stray dogs. This ridiculous situation is to be laid at the feet of strongly organized antivivisection societies, backed in some instances by quack medical organizations and

powerful newspapers singly and in chains. Chicago for years has been a hot-bed of antivivisection. Certain men in the medical schools of that city have for some years devoted much time to combat the situation.

In Baltimore, after the city council passed an ordinance in 1949 permitting the use of dogs from the pound in medical schools, the antivivisectionists got busy. A tricky referendum was set up by them and 21,000 signatures, double the number needed, were obtained to place the question on the ballot for November 7. To meet this threat the Maryland Society for Medical Research was formed with a layman at its head. This with physicians, dentists, veterinarians and druggists distributed literature, employed a sound truck, advertised in the newspapers, gave radio talks and fostered news stories on research. Because the referendum was so worded that a negative answer was necessary to pass it, on the week end before the election 442 of the 483 precincts were covered by a door-bell ringing campaign by doctors' and dentists' wives, hospital resident staffs and nurses. College students, doctors and nurses distributed literature at the polling places. The referendum was defeated 160,000 to 38,000.

Los Angeles, the mecca of many cultists, has for decades been a stronghold of antivivisectionists. A similar referendum concerning the use of dogs in medical schools was introduced. A professional petition-gathering firm employed by the antivivisectionists gathered 76,000 signatures to place the referendum on the ballot. The Chancellor of the University of California headed a Citizens Committee of 100 civic, professional and scientific groups. The P.-T. A. distributed literature. Veterinarians put up posters in their offices. Doctors mailed slips with monthly bills and distributed, along with the hospitals, literature and bumper strips. College students rang the door-bells. Druggists ran full-page ads in favor of the scientific use of dogs. The strong antivivisectionist Hearst papers published 116 full-page ads against animal experiments. The antivivisectionists were beaten 357,393 to 261,699.

In 1949, in the Illinois state legislature



## Special Notice

On December 1 the Tennessee Volunteer Advisory Committee mailed a questionnaire to each physician and dentist, requesting that these forms be completed and returned to the office of the above agency. This information was necessary to secure the information that is being requested by the National Security Resources Board, Health Resources Office, on information card form No. NSRB-504. The State Medical Association is cooperating with the committee in getting all this information tabulated. Approximately 1,900 physicians and dentists have failed to return the questionnaire. We urge you to complete this questionnaire and mail it to the Tennessee Volunteer Advisory Committee, 419 Seventh Avenue, North, Nashville, Tennessee, at the earliest convenient date. Every doctor and dentist irrespective of age is requested to complete this questionnaire. This material is necessary both for Civilian Defense and National Preparedness Program.

a bill for the saving of dogs usually killed in pounds, for scientific purposes was defeated by a few votes. Before the November 7 elections medical science organizations became active. Three of the major opponents were defeated by narrow margins representing quite probably the medical vote. Other favorable legislators received good pluralities in spite of antivivisectionist pressure.

In a democracy the intelligent minority so often slumps into an attitude of defeatism because it sees itself outnumbered. Recent years have shown that the medical profession and allied groups, though a small minority can, because of their honored standing in the community, influence and educate sufficiently enough of the electorate to provide the majority needed. This balance of power is an awesome weapon but is safe in the hands of the intelligent minority

for, in the passage of years, it will in general be used for the good of the populace.

The physician must remember this lesson in coming months and years.

R. H. K.

## WHAT'S NEW IN MEDICINE

### ANAPHYLACTOID PHENOMENON

This term has been applied for years to the shock, resembling anaphylaxis, which may result from the intravenous injection of foreign material. Gross and Brown (Am. J. M. Sc., 221: 46, 1951) used clay as the particulate matter for their experiments.

The clay was dispersed as a 20% suspension in water with sodium pyrophosphate as a buffer. Rabbits were the test animals. Particles of 0.2 micron size caused death in 100% of all animals; those 0.6 micron in size caused no deaths and the use of particles of 0.3 micron in size caused some deaths. The smaller size suspensions caused blockage of pulmonary vessels by aggregated particles causing emboli. In vitro experiments show that the fine particles suspended in plasma cause sticky aggregates because of adsorption of the protein to the particles. Chemical studies proved that protein is the adsorbed material, there being an inverse relationship between the size of the particle and the amount of adsorbed protein.

Perfusion of lungs of rabbits with plasma, free of fibrin or cells, but containing particulate matter, caused vascular occlusions in the pulmonary bed no different than those of animals dying of anaphylactic shock.



### THERAPY IN FRIEDLANDER'S BACILLUS PNEUMONIA

In the past, statistical studies have shown a mortality rate of 75 to 80% for acute pneumonia due to *Klebsiella pneumoniae*. Chronic infection in the lungs has been attended by a lesser mortality rate up to 50 per cent.



Gill (Am. J. M. Sc., 221: 5, 1951) evaluates the effect of sulfonamides, penicillin and streptomycin in 22 cases of acute Friedländer's bacillus pneumonia. Patients receiving sulfonamides showed a lowered mortality rate. Three cases receiving streptomycin, combined in one instance with sulfonamides and in two with penicillin, recovered. Five patients treated with penicillin alone died. Even though this is a small series, i.e., 5 cases, the author speculates concerning the control of certain organisms in the respiratory tract by penicillin permitting the overgrowth of the Friedländer's bacillus.



#### AUREOMYCIN AND TERRAMYCIN IN THE TREATMENT OF AMEBIC COLITIS

Brown, Burson and Ransmeier reported upon the use of these antibiotics (Meeting American Federation for Clinical Research, Southern Section, Jan. 26, 1951). Four patients with amebic colitis and 3 carriers of cysts were treated with aureomycin. Terramycin was used in the treatment of 5 colitis cases and 2 cyst passers. Most were treated with a dose of 0.75 Gm. by mouth every 6 hours for 10 days.

By the third or fourth day, stools were usually free of amebas; diarrhea and cramping were less, and proctoscopy showed healing of the lesions. Ten of the patients were followed for from 3½ to 14 months with stools negative for *E. histolytica*. The other 4 had negative stools 5, 14, 15 and 30 days after completion of treatment. Thus to date 3 Gm. of either antibiotic given in 10 days apparently has prevented relapse.

The authors had an additional patient with amebic colitis who had been treated elsewhere with 1.5 Gm. of aureomycin daily for a week and who relapsed after a month. Retreatment with 23.5 Gm. of aureomycin in 8 days was followed by a second relapse 2 months later. He was then given 31 Gm. in 10 days. He seemed to be cured on examination 6½ months later, both clinically and by stool examination.

#### EFFECT OF HUMIDITY AND TEMPERATURE ON PATIENTS WITH CONGESTIVE HEART FAILURE

Thirteen normal control subjects and thirteen patients having cardiac disease and congestive failure were subjected to the stress of a hot, humid environment. After a period of observation under comfortable atmospheric conditions the subjects and patients were placed in an environment having a temperature of 40° C and 85% relative humidity for from 40-114 minutes.

Berenson (Meeting of the American Federation for Clinical Research, Southern Section, Jan. 26, 1951) reported that such an environment caused acute attacks of left ventricular failure (cardiac asthma),—dyspnea, orthopnea and pulmonary rales in 5 patients. In 9 patients gallop rhythm occurred or was accentuated by exposure to these external circumstances. The control subjects showed only an elevation of blood pressure.



#### CLINICAL USE OF PROTEIN-BOUND IODINE DETERMINATIONS

Bondy and Hallman (Meeting of the American Federation for Clinical Research, Southern Section, Jan. 26, 1951) report upon the results of 1,700 determinations. Normally the quantity of protein-bound iodine is from 3.4 to 7.8 mcgm. per 100 ml. of serum. In hyperthyroidism the value is higher; it is lower than normal in the presence of hypothyroidism. Protein-bound iodine (PBI) determinations may thus replace the BMR determinations in instances where the latter are unsatisfactory or impossible as in heart disease, fever, psychosis and in children.

The PBI falls upon the administration of antithyroid medication and more quickly than does the BMR. False elevations of the PBI occur whenever iodine has been given in whatever form. Thus it may be elevated for 1 to 2 months after intravenous pyelograms; the gall bladder dye may raise the PBI to abnormal levels for as long as 6 months.

## DEATHS

**Dr. C. H. Gurney**, 83, retired Chattanooga physician, died January 14, 1951.

**Dr. James Jefferson Guinn**, 44, died in his office, the Guinn Clinic, January 8, 1951. Dr. Guinn is believed to have suffered a heart attack, having suffered a heart condition for several years.

**Dr. John Harris**, 78, who had practiced medicine in Crockett County for 55 years, died at his home in Bells on Sunday, January 7, 1951.

**Dr. Williamson Walker**, 76, retired Henry County physician, died Thursday, January 11, 1951 at his home in Paris.

**Dr. Sam H. Hodge**, 65-year-old veteran physician of Knoxville, died January 21, 1951. Dr. Hodge has long been a colorful personality with varied interests in politics, civic affairs and philanthropy.

### APOLOGY

This column erroneously carried the name of Dr. Neuton S. Stern, Memphis, in the December Issue as a deceased member. We were red-faced when Dr. Stern advised us by letter on January 16 that he was "very much alive and practicing medicine every day."

Our deepest apologies, Dr. Stern.

### Resolutions

Whereas, on November 27th, 1950, Dr. Daniel Edgar Young, passed away at the Martin hospital at the age of 66.

Whereas, he was born in Henderson County in 1884 and graduated from the University of Tennessee Medical School in Memphis in 1913.

Whereas, he began his medical practice in 1913 in Weakley County. He lived and practiced in Sidonia and Sharon since that time until one month ago, when he retired from active practice.

Whereas, he was a member of A.M.A., Tennessee State Medical Association, Weakley County Medical Society and American Railway Surgeons. He was local surgeon for the Illinois Central Railroad.

Whereas, he had manifested a keen interest in the medical profession and his fellowman and his memory will always linger in the hearts of the medical profession in Weakley County; now therefore, be it

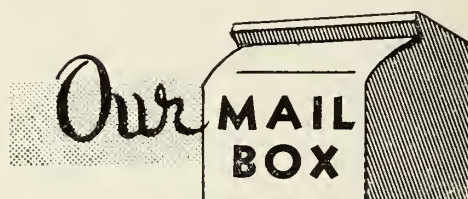
Resolved, that the membership of Weakley County Medical Society hereby express its deep regret in the loss of this physician and that a copy of these Resolutions be sent to Mrs. D. E. Young, Sharon, a copy to the State Medical Journal, and one filed as a permanent record of our organization.

M. R. BEYER, M.D., *President*

M. H. BUCKLEY, M.D., *Vice-President*

V. C. FAGAN, M.D., *Secretary*

Weakley County Medical Society



Mr. V. O. Foster, Executive Secretary  
Tennessee State Medical Association

*Dear Mr. Foster:*

The members of the Tennessee State Medical Association are cordially invited to attend the Hale-McMillan Lecture to be held in the Public Health Lecture Hall of Meharry Medical College on Wednesday, February 28th, at 8:00 P.M. This lecture will be delivered by Dr. Francis D. Moore, Chief Surgeon of Peter Bent Brigham Hospital and Professor of Surgery at Harvard University Medical School, Boston, Massachusetts. He will speak on, "Some Metabolic Responses to Injury, Surgery and Repair."

Very sincerely yours,

MATTHEW WALKER, M.D.

Professor of Surgery

Chairman of Department of Surgery

## PROGRAMS AND NEWS OF MEDICAL SOCIETIES

THE FOLLOWING LETTER HAS BEEN SENT TO ALL LOCAL SOCIETIES

*To Presidents and Secretaries of Local Medical Societies:*

Re: OFFICIAL NOTICE OF A PEND-



## ING AMENDMENT TO THE CONSTITUTION OF THE TENNESSEE STATE MEDICAL ASSOCIATION.

*Dear Doctor:*

You are hereby notified that the following amendment to Section 2, Article VIII of the Constitution of the Tennessee State Medical Association was duly introduced at the annual session in April 1950:

*"The President Elect, the three Vice-Presidents, the Secretary-Editor and the Speaker of the House of Delegates shall be elected annually for one year, and the Speaker of the House shall hold office for no more than four years."*

The above amendment was introduced by Dr. Trewhitt of Bradley County and, as you know, an amendment to the Constitution has to lay on the table for one year.

This amendment will be voted on during the annual meeting on April 9, 10, 11, 1951 in Nashville.

You are requested to discuss this amendment before your local society and to instruct your Delegates as to how they should vote on this matter.

Very sincerely yours,  
V. O. FOSTER,  
Executive Secretary.

George Lull, AMA General Manager, Dr. Crockett and Mr. Gates, Mrs. Shelby Carr of Richmond, Ky., Dr. E. K. Yantes, Wilmington, Ohio, H. E. Slusher, Jeffersonville, Mo., Paul Miller, East Lansing, Mich., Dr. D. G. Miller, Jr., Morgantown, Ky., Frank W. Peck, Chicago, J. Walter Hammond, Waco, Texas, Joseph W. Fichter, Columbus, Ohio, Maude Wallace, Blacksburg, Va., Gertrude Clouse, Madison, Wis., Marion Souza, Baton Rouge, La., Dr. Haven Emerson, New York and Mrs. Charles W. Sewell, Chicago.

On the closing day, the program featured Herschel Newson, Washington, D. C., Tom J. Hitch, President of The Tennessee Farm Bureau Federation, H. C. Sanders, Baton Rouge, Dr. Allen T. Stewart, Lubbock, Texas, Dr. Felix Underwood, Jackson, Miss., Eugene Butler, Dallas, Mrs. Arthur A. Herold, Shreveport, La., Dr. Thomas E. Shaffer, Columbus, O., Dr. George F. Bond, Bat Cave, N. C., Dr. Dean S. Luce, Canton, Mass., Dr. Elmer L. Henderson, President of AMA, and Ed Lipscomb, Memphis.

Subjects included "Small Community Experiences with Health Improvement," "Public Health and Medical Care for the Community and the Individual," "A Plan for Rural Medical Services" and "Following Through Back Home."

## NATIONAL NEWS

A significant national medical meeting comes to Tennessee this month when the AMA's Rural Health Committee and State Rural Health Committees assemble in Memphis February 22-24.

On Washington's birthday, State Association secretaries and State Rural Health Committees will meet with health educators of the Agricultural Extension Service for a program titled: "Sparkplugging Rural Health."

Dr. F. S. Crockett, chairman of the AMA committee, was to direct the opening session and Aubrey Gates, AMA Field Director on Rural Health, had the topic of "Responsibilities in Rural Health."

The second day's speakers were Dr.

## PERSONAL NEWS

**Dr. Kenneth L. Green**, Mount Pleasant, was painfully but not seriously injured last month when his car overturned on the Lewisburg Highway.

**Dr. Robert C. Thompson** opened his office in the Professional Building in Chattanooga last month. Dr. Thompson received his training in dermatology at the University of Virginia Hospital. Mrs. Thompson is the former Katharine Riddle of Shelbyville.

**Dr. George Inge**, Knoxville, was injured when his car was involved in a traffic accident. It is alleged that the driver of another car ran a stop light and rammed Dr. Inge's automobile.



**Dr. Herbert Acuff**, Knoxville, President of the International College of Surgeons, was scheduled to address the Southern Section, United States Chapter of the College in Atlanta last month.

**Dr. John C. Chambers** was reelected to a four-year term as County Physician of Haywood County last month. He has served in this capacity for many years and was re-elected by acclamation.

This Association lost a staunch friend and supporter in the passing of **Mr. J. Frank Porter** of Columbia. Mr. Porter, 70, died February 3 at his home in Williamsport following several weeks' illness. Mr. Porter had been a member of the Association's Prepaid Insurance Committee since its creation early in 1949. Mr. Porter was one of four laymen-members of the Committee. He ably represented the vital interest of rural people and the Tennessee Farm Bureau in our prepaid insurance program. The medical profession joins the innumerable list of organizations in Tennessee, whose activities and interests have had the wise counsel of this leader, in expressing our regret at his passing.

**Dr. William D. Martin**, Superintendent of the Davidson County Hospital, has been cited by the Goodlettsville Gazette as a worthy member of that newspaper's public list of "Outstanding Personalities." The citation is given for meritorious public service.

**Dr. John J. Lentz**, Nashville, was tossed a beautiful editorial bouquet last month by a local newspaper for his faithful service as Public Health Officer for Davidson County.

Two doctors, both Farrars, were injured in an auto accident last month. **Dr. J. H. Farrar** and **Dr. Clarence Farrar**, both residents of Manchester, were the victims. Incidentally, they were treated at the Farrar Clinic. No self-medication, of course.

**Dr. Warren L. Clark**, native of Washington County, has opened an office in Church Hill for the practice of medicine and surgery. Dr. Clark received his degree from the University of Tennessee College of Medicine.

**Dr. James A. Loveless**, Gallatin, presi-

dent of the Sumner County Medical Society, is Chairman of the Heart Fund Drive for his County.

**Dr. Grace Moulder**, Secretary of the Bedford County Medical Society, is Chairman of the Heart Fund Drive for Bedford County.

**Dr. Hugh Smith** of the Campbell Clinic, Memphis, addressed the American Academy of Orthopedic Surgeons meeting in Chicago last month.

**Dr. S. C. Garrison** was recently elected president of the Medical Staff of the Rutherford Hospital.

**Drs. George F. Seeman**, D.D.S., and **James J. Vaughn**, D.D.S., both Nashville members of the Association, provided the scientific portion of the program of the Northeast Mississippi Dental Society at its Annual Meeting in Tupelo, Miss., on January 22, 1951. Dr. Seeman's subject was "X-ray Interpretation and Oral Surgery," while Dr. Vaughn's subject was "Crown and Bridge Prosthesis."

**Dr. W. C. Chaney**, Memphis, Governor of the Tennessee Chapter of the American College of Physicians, reports a most successful Mid-South Regional meeting of the College in Memphis last month. Dr. Chaney also served as general chairman of arrangements for the meeting.

## WOMAN'S AUXILIARY

### SEVENTH ANNUAL CONFERENCE STATE PRESIDENTS, PRESIDENTS-ELECT, AND NATIONAL CHAIRMEN OF STANDING COMMITTEES

The seventh annual Conference of State Presidents, Presidents-Elect, and National Chairmen was held at the LaSalle Hotel, Chicago, November 2 and 3, 1950. Forty-four state Presidents were present. Your President, President-Elect, and Mrs. W. W. Potter, National Director, represented Tennessee.

Public Service through Health Education was the theme of the Conference.

A notable group of speakers appeared before us. The first was Dr. John Cline, President-Elect of the A.M.A. He predicted an

election victory favorable to the medical profession. Dr. Ernest B. Howard, Assistant Secretary of the A.M.A. and adviser to the National Woman's Auxiliary, in his address the first day of the Conference, spoke of the physician draft, and of the Federal Aid to Education Bill that surely would be introduced in the Eighty-Second Congress. This bill has been introduced as he predicted. He told us of the counter proposal to this bill—that of establishing a fund on a voluntary basis, several large firms having pledged support. Dr. Howard further reported that a new student medical association would be established in Chicago on December 28 and 29, 1950.

The first of the four panel discussions followed, with Mrs. Leo J. Schaefer as Moderator on "Organization." Eight state Presidents participated in this group, your President discussing "How to Organize New Auxiliaries."

The second panel discussion, "Public Relations," was led by the National Chairman, Mrs. Theodore Heinz of Colorado. The consensus was that the Auxiliary should develop Public Relations through a positive approach, that each wife was a Public Relations committee of one. The drive for resolutions opposing compulsory health insurance should continue with special interest in P.-T.A.'s and Leagues of Women Voters. Health Exhibits for school, "Health Day" projects, nurse scholarships, aid in nurse recruitment, and radio programs were some of the activities suggested.

The "Program" panel led by Mrs. Harry F. Pohlmann, National Program, covered rural health meetings, indoctrination courses, cooperation between Medical Societies and the Auxiliaries, self-education in voluntary health plans, schools of instruction and cooperation with other organizations. Wider distribution of "Today's Health" was discussed at another panel. The participants in the "Legislation" panel stressed the importance of speakers bureaus, study groups, and letters to legislators and individuals.

Highlights of talks by Miss Leone Baxter and Mr. Clem Whitaker were that 50,000 business establishments bought advertising

space during the campaign and that the Carpenters' Union, 70,000 strong, had gone on record against compulsory health insurance.

Dr. W. W. Bauer, Director of the Bureau of Health Education of the A.M.A. and Editor of "Today's Health," spoke on "Health Education Media for the Woman's Auxiliary." He urged us to make good use of our radio stations for health education. Stressed also was the use of educational records released by the A.M.A. One of a series is entitled, "Gold Medal Doctors."

A luncheon speaker, Dr. George M. Lyon, Special Assistant of Atomic Medicine, Veterans Administration, Washington, spoke on "A New Challenge to American Medicine," with emphasis on civil defense.

Much more could be written concerning the Conference. To meet and exchange ideas and views with other state Presidents and President-Elects was inspirational and instructive. Superlatives are needed to describe the inspiration and resolve to do more that one receives at such a Conference.

VIRGINIA W. NICELEY



#### MESSAGE FROM THE PRESIDENT

A little more than nine months of my year as your State Auxiliary President is now history. The remaining months are to be our busy ones: to finish carrying out the plans, projects and programs.

Please allow me to say "thank you" to all of you for your gracious hospitality and warm welcome that greets me wherever and whenever we come together. Your thoughtfulness, sincere consideration and cooperation is most inspiring and gratefully appreciated.

The program as planned for this year, when carried out, will result in another successful year: aid in nurse recruitment, nurse scholarship and loan funds; some increased interest in "Today's Health" subscriptions, study groups, speakers bureaus, public relations in all phases, increase in membership and organization of new county auxiliaries.

And in closing, may I say, let us work a little harder, cooperate a little more, and



try to realize the importance of exerting effort and devoting time to our share in preserving American Medicine.

MRS. PARK NICELEY, *President*

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#### OFFICERS AND CHAIRMEN TENNESSEE 1950-1951

Officers and committee chairmen of the Woman's Auxiliary to the Tennessee State Medical Association are published herewith as a permanent record in the JOURNAL.

President, Mrs. Park Niceley, Knoxville; President-Elect, Mrs. Lynch Bennett, Nashville; Regional Vice-Presidents, Mrs. George Tharp, Knoxville; Mrs. James A. Kirtley, Nashville; and Mrs. Carroll Turner, Memphis; Treasurer, Mrs. J. M. McCulloch, Memphis; Recording Secretary, Mrs. Ben Pentecost, Memphis; Corresponding Secretary, Mrs. Herschel Penn, Knoxville.

Parliamentarian, Mrs. Joel C. Morris, Knoxville; Historian, Mrs. Charles C. Traub IV, Nashville; One-Year Directors, Mrs. J. F. Manning, Maryville, Mrs. Oscar Nelson, Nashville, and Mrs. M. W. Holehan, Memphis; Two-Year Directors, Mrs. Russell Hackney, Chattanooga, Mrs. A. T. Hall, Lebanon, and Mrs. Clyde V. Croswell, Memphis.

#### Committee Chairmen

Program, Mrs. W. R. Buttram, Jr., Chattanooga; Health Essay Contest, Mrs. Frank Owings, Johnson City; Finance, Mrs. Fowler Hollabaugh, Nashville; Bulletin, Mrs. Joseph D. Anderson, Nashville; Legislation, Mrs. Daugh W. Smith, Nashville; Archives, Mrs. W. W. Hubbard, Nashville; Public Relations, Mrs. Roland H. Myers, Memphis; "Today's Health," Mrs. W. O. Baird, Henderson; and Revisions, Mrs. Harold Boyd, Memphis.

★

#### NEW FIVE-COUNTY AUXILIARY MEETS

The newly organized Woman's Auxiliary to the Five-County Medical Society held a luncheon-business meeting in Crossville, Hotel Taylor, January 17, with 21 members attending.

Mrs. Park Niceley, State President, made a challenging and interesting talk to the new Auxiliary.

#### New Officers of Knoxville Auxiliary Begin Terms

A new cabinet of officers for the Woman's Auxiliary to the Knoxville Academy of Medicine is well into its 1951 program of work.

Those installed at the December 1950 meeting were Mrs. Herbert Acuff, President; Mrs. Ralph Hamilton, President-Elect; Mrs. O. E. Ballou, vice-president; Mrs. Thomas Stevens, recording secretary; Mrs. George Mahon, corresponding secretary; Mrs. J. D. Winebrenner, treasurer; Mrs. W. W. Potter, historian, and Mrs. H. H. McCampbell, parliamentarian.

On January 10, the Auxiliary presented a "Community Day" program in the Parish House of Church Street Methodist Church. A coffee hour followed the meeting. Dr. B. M. Overholt was the speaker, discussing Socialized Medicine. Mrs. Acuff, the new president, presided.

#### CONVENTION REMINDER

### Twenty-Third Annual Convention

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to the

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#### OPENING FOR GENERAL PRACTITIONER

The offices and hospital facilities formerly known as the "Guinn Clinic" in Harts-ville, Tennessee, is available for lease up to three years with an option to purchase.



The Guinn Clinic has been operated by Dr. J. J. Guinn, deceased, for the past sixteen years.

Hartsville is the county seat of Trousdale County which has a population of six thousand. There are more than 10,000 people within the medical service area surrounding Hartsville.

Inquiries should be addressed to

MRS. J. J. GUINN  
Hartsville

★

*Editor:*

Since I am interested in settling in the State of Tennessee beginning July or August, 1951, I would appreciate any information concerning localities needing a pediatrician, a pediatrician seeking an associate, or a group desiring a pediatrician. Is there a diagnostic clinic located in a community desiring a pediatrician for full time hospital work?

At present I am completing my fifth year of hospital training; the last three years will have been spent at Harriet Lane Home, the Johns Hopkins Hospital, Baltimore, Md., my present position being that of assistant resident in pediatrics.

I am a veteran of World War II, having spent two years overseas, and am on the list for taking board examinations in pediatrics in 1951.

MILTON PRYSTOWSKY, M.D.

## ABSTRACTS OF CURRENT LITERATURE

**The Place of Radioactive Isotopes in Therapy.**  
Brues, A. M. *Am. J. Obst. & Gynec.*, 60:1009, 1950.

The author thinks we have criteria which are of some value in enabling us to guess what the radioactive isotopes will have to offer. Progress in the field will be due to the patience and ingenuity of clinical men using isotopes and to the imagination of research men seeking information which may be of assistance in envisioning their possible uses.

Radioisotopes, we can say categorically, are useful by virtue of the radiation which they give off. In the more basic aspects of physiology and biochemistry we find the field of investigation in which radioactive elements have been most fruit-

fully used up to the present time. This is especially true of the tracer method as used in studying pathways of metabolism and the fate of substances, chemical groups, and atoms which are introduced into the body. Since Schoenheimer first laid emphasis on the dynamic state of body constituents and on the use of tracer methods, a drastic revision of our concepts in physiological chemistry has been taking place. If we may trust the history of clinical research, these techniques will be used in the clinic, perhaps routinely, in the near future; this is retarded chiefly through our present uncertain state regarding the human toxicity of several isotopes, notably carbon.

Of particular interest to gynecologists will be the metabolism of the steroid hormones. They may be produced by chemical synthesis, in which case certain groups will bear a carbon label, and we are investigating the possibility of manufacturing "indiscriminately" labelled steroids by biosynthesis. Plants grown in an atmosphere containing  $\text{CO}_2$  will contain a large variety of labelled components, including plant steroids. By using the plants as fodder for animals, similarly labelled animal constituents will be obtained. Whether chemical synthesis or biosynthesis will be more efficient or suitable for various purposes depends on many factors, including the efficiency of the synthesis and the nature of the problem to be investigated.

Radiocobalt has been found useful as an external radiation source or in interstitial therapy, in which cases it is used essentially as a radium substitute. The use of radiocobalt in treatment of carcinoma of the cervix is pioneer work because, despite our experience with radium in the therapy of malignant disease, cobalt has a homogenous gamma radiation of different energy, so that a considerable amount of exploratory work must be done over again. Successful interstitial therapy depends, after all on a proper relation between dosages to tumor and normal tissues; in therapy of lesions of the cervix these factors are both clear-cut and critical. This painstaking work is therefore important in setting the standards of cobalt therapy in general. This isotope has the advantage over radium in that there is a much greater potential supply and a potentially greater specific activity. What might be the possibility of producing radiation damage to the germ plasm of the developing embryo by administering isotopes in pregnancy? The problem is essentially similar to that raised in connection with irradiation by X-ray of the pelvis containing a growing fetus. Presumably, the same rules should apply as in diagnostic radiography, and with associated experimental work it should be possible to estimate the dosage to the fetus and to the gonads which would follow radioisotope administration. Recent work has shown that 200 to 400 r X-ray induce effects on the fetus which depend on its stage of development. In the earliest embryos, the damage

results in abortion; in later stages malformed embryos develop to term. These stages (judging by the developmental picture in experimental mice) correspond to very early pregnancy in the human being. The medical future of radioactive isotopes will, at first, lie largely in the field of basic biochemical research and will be valuable in the understanding of such problems as growth, for which the cruder biochemical procedures have not been satisfactory but for which the tracer technique is ideally designed. Such investigations will have an impact on clinical practice. Recalling the lapse of time between discovery of the X-rays and examination of the Fallopian tubes by radiologic methods, one can see that the full development of the possibilities of a discovery, even in more or less obvious clinical application, takes time. But we may take assurance in the fact that clinical practice is becoming ever closer to basic experimental research.

Finally, in the therapy of disease, particularly carcinoma, there will exist for many years the possibility of discovering radioactive compounds with special affinity for carcinoma or for particular types of carcinoma. To be ideally effective, such compounds must exhibit affinity by factors of 100 or more above the total-body concentration. At least it is safe to predict, through increasing use of isotopes in a variety of ways, a continuation and acceleration of the slow, steady progress which clinical medicine, surgery, and radiology have been making during the past few decades. The author is sure radiation therapy will be in an even more satisfactory state ten years from now than it is now and it may, in the final analysis, be impossible to say exactly why.

(Abstracted by Hamilton V. Gayden, M.D., Nashville, Tennessee.)



**Aldridge, C. W. and Mason, J. T., Ureteral Obstruction in Carcinoma of the Cervix. *Am. J. Obst. & Gynec.*, 60: 1272, 1950.**

The authors have been impressed with the large number of patients having carcinoma of the cervix, who develop pathologic conditions of the urinary tract. Changes in the bladder or urethra secondary to irradiation or extension of the neoplasm are common. Interest here, however, is primarily concerned with the problem of ureteral obstruction. The reported incidence of ureteral obstruction and subsequent death from uremia has varied considerably with different investigators. It is usually agreed, however, that ureteral obstruction and terminal uremia are a common eventuality. De Alvarez, in a review of the University of Michigan Hospital autopsy series found that 40 per cent of patients with carcinoma of the cervix died of uremia. For many years there has been a difference of opinion concerning the cause of ureteral obstruction. Several factors may, of course, play a part in its production. First,

it may be caused by extension. Second, it may be caused by changes secondary to irradiation. The authors have long considered the possibility of active early surgical management of the ureters (i.e., transplantation into bowel, nephrostomy, or cutaneous ureterostomy) when evidence of ureteral obstruction is first demonstrated. Any procedure which might hope to prolong the life of 40 to 50 per cent of these patients now dying of uremia should be given serious consideration. In order to accumulate additional data regarding ureteral obstruction this study of patients with carcinoma of the cervix was planned and carried out. At the autopsy table, patients dying of uremia have demonstrated thickening and nodulation of the broad ligaments. This is often extensive enough to form a solid bridge of tissue extending from one wall of the pelvis to the other in which all organs are fixed (frozen pelvis). The ureters may be visualized passing into this mass after they enter the true pelvis. Dilatation of the ureters usually begins at the margin of the tumor mass which fills the pelvis. The lumen of the ureter is relatively constricted as it courses through the mass. It is not necessary to have complete stenosis of the ureter before dilatation may develop above. Until recently it has been our policy to dilate the ureters when unilateral hydronephrosis was present. Nephrostomy is performed when bilateral obstruction is present and the neoplasm is not progressing so far as can be determined clinically. The patient's general condition would, of course, have to be such as to permit operation. Nephrectomy is considered only when symptomatic pyelohydronephrosis is present. The authors' incidence of ureteral obstruction in all cases of carcinoma of the cervix is 34 per cent. This agrees closely with the reported incidence of obstruction as found at autopsy, (40%). Evidence points to the fact that the cause of obstruction to the ureters is extension of the neoplasm. From the long-range therapeutic standpoint ureteral dilatation is not indicated and if used at all should be restricted to the alleviation of pain of a unilateral hydroureter hydronephrosis only during or shortly after X-ray therapy. Early diversion of the urinary tract, either by uretero-sigmoid transplant or cutaneous ureterostomy, would seem to be preferable to late nephrostomy drainage. Nephrostomy is indicated in patients having pyelohydronephrosis.

(Abstracted by Hamilton V. Gayden, M.D., Nashville, Tenn.)



**Davidson, J. K., and Eddleman, E. E., Insulin Resistance. *Arch. Int. Med.*, 86:727, 1950.**

Insulin resistance has been arbitrarily defined as a state which requires 200 or more units of insulin per day, for longer than 48 hours, for regulation in a nonacidotic person with diabetes mellitus. This is to be differentiated from conditions causing a



temporary increase in insulin requirement, such as:—

1. Poor absorption from subcutaneous tissues.
  - a. Insulin lipodystrophy.
  - b. Shock.
  - c. Congestive heart failure.
2. Hyperthyroidism.
3. Insulin deficiency plus hyperfunction of the adrenal cortex (alarm reaction of Selye).
  - a. Diabetic acidosis.
4. Hyperfunction of adrenal cortex.
  - a. Surgical procedures.
  - b. Trauma.
  - c. Pituitary basophilism.
  - d. Carcinoma of adrenal cortex.
5. Increased mobilization of hepatic glycogen.
  - a. Pheochromocytoma.

The proper management of these cases consists of removing the underlying cause, if possible, at which time the increased insulin requirement will disappear.

The authors report a case of true insulin resistance associated with carcinoma of the pancreas. They then list all of the fifty cases of true insulin resistance reported in the literature and give the essential data on each one.

In analyzing these data no common denominator could be found to explain the etiology of the resistance to insulin. It occurred in patients from 12 to 79 years of age. The duration of the condition lasted from 15 days to six years, the greatest number being from one month to one year. Insulin dosage necessary for control varied from 200 to 5,280 units per 24 hours. Furthermore, it was present in a non-diabetic schizophrenic who was not convulsed by 1,000 units given intravenously at one dose.

The serum of 26 patients was tested for circulating antibodies which protected mice or rabbits from the hypoglycemic effects of insulin. In 8 cases these antibodies were demonstrated. They suggest that with improved technique for examination more insulin resistant cases might fall into this class.

The conditions causing *true* insulin resistance may then be listed as follows:

1. Circulating insulin-neutralizing antibodies.
2. Unknown.
  - a. Neutralization of insulin by fixed tissue antibodies.
  - b. Inactivation of insulin by substances naturally occurring in the body, such as trypsin, "insulinase," or "glycogenolytic factor."

The management of these cases is simple. First, all of the causes of temporary resistance should be sought for and ruled out. Then enough insulin is given to control glycosuria, regardless of the amount of insulin required. The patient should be cautioned to be on the lookout for insulin reactions because sensitivity to insulin may return abruptly.

(Abstracted by Philip C. Thomas, M.D., Knoxville, Tenn., for the Tennessee Diabetes Association.)

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**Prolonged Labor. Mengert, W. F. J. Iowa M. Soc., 40:1, 1950.**

Many factors can prolong labor, including cephalopelvic disproportion, obstructing tumor, malpresentation, cervical or vaginal scar and poor uterine contractions. Most modern physicians agree that the cervix will dilate under the force of efficient uterine contraction, unless it has been scarred as the result of disease or previous operation.

In seeking the cause of uterine inertia, one realizes that little is known about the physiopathology of normal uterine contraction. One of the major reasons so little is known about myometrial physiology is that the uterus can exhibit many different responses. For example, the uterus is refractory to extract of the posterior pituitary during early pregnancy and the late puerperium.

Prolonged labor is defined as any labor over 30 or more hours. The fact that uterine inertia is usually associated with primigravidas, and that variations of intensity of uterine contraction in response to emotional stimulus are well known, suggests that an emotional stimulus may be causative. The incidence of prolongation of labor ranges from two to nine per cent, with a representative average in the neighborhood of 1:20 to 1:25 labors.

The maternal dangers of prolonged labor include infection and those imposed by ill-chosen emergency operative procedures. Fetal dangers stem chiefly from anoxia and infection. Murphy, using the Lorand tocograph, offered evidence to show that the pattern of contraction in uterine inertia is inefficient and the uterus does not relax fully between contractions. The uterine muscle is constantly in a state of mild contraction, and therefore its blood supply inevitably must be diminished.

There have been many attempts to control uterine contractions, both to augment and to allay them. Estrogen has been used to prime the uterus; the results are somewhat equivocal, but no harm is produced. The calcium ion is supposed to augment uterine activity, but Patton and Mussey observed that intravenous injection of calcium gluconate did not appreciably increase uterine contraction. Quinine has a dubious value as an oxytocic and may exert a deleterious action on the fetal auditory nerve. The irritation and hyperemia induced by enemas and ingestion of castor oil may stimulate uterine activity, but the physical depletion of and the annoyance to the patient more than offset any possible benefits. The danger of infection suggests the general rule that in no instance should the membranes be ruptured unless the patient is within a few hours of certain termination of labor.



Ergot and its products are of too prolonged action to justify their use in uterine inertia. Pituitrin is a relatively short-acting drug and when properly given is of marked benefit. Pituitary extract is a powerful drug, and its indiscriminate use can kill or cripple mothers and their children. Its use in the efficiently contracting uterus, in normal labor, is unreservedly condemned. On the other hand, uterine inertia imposes certain maternal and fetal dangers which can be minimized when pituitary extract is employed with intelligence.

During the years 1947 and 1948 there were 74 women with prolonged labor, due to uterine inertia, among 3,882 deliveries. Forty-four were primiparae. There were no maternal deaths. Three babies died, one prior to birth and two immediately after. Intrapartum fever occurred in three women, and puerperal endometritis in ten. Two women suffered a hemorrhage of 600 or more cc., and four had retained placentas. Forty-six, or 62 per cent delivered spontaneously. There were 17 low forceps and eight midforceps and three breech deliveries. There were no cesarean sections in this series. Three women had Duehrssen's incisions; oxytocics to stimulate labor were used in 11 of the 74 women.

A summary of current treatment at Parkland Hospital is as follows: (1) maintenance of fluid balance and prevention of dehydration; (2) 30,000 to 100,000 Oxford units of penicillin every three hours as soon as diagnosis of prolongation of labor is made; (3) each night, when it is certain that delivery is not imminent, administration of one-half grain of morphine, 1/100 grain scopolamine, and two cc. of 50 per cent magnesium sulfate

intramuscularly; (4) stimulation by injection of one minim of posterior pituitary extract, one-half hour later a second dose of one or two minims; a third dose is given one-half hour later. Pituitrin administered according to the above schedule may be repeated in the early afternoon, but more than two courses in any day is undesirable; (5) avoid operation at least until the cervix is fully dilated; (6) continue administration of penicillin to the child after it is born.

The two measures recently introduced which have greatly mitigated both the maternal and fetal dangers of uterine inertia are the administration of penicillin throughout the course of labor and the stimulation of the uterus by the cautious, judicious use of minute doses of posterior pituitary extract.

(Abstracted by Milton Smith Lewis, M.D., Nashville, Tennessee.)

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Diplomate, American Board of Psychiatry and Neurology, Inc., Medical Director

# Journal of the Tennessee State Medical Association

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*The author describes the amelioration in symptoms obtained in hope-  
less neoplasm, by the injection of radioactive isotopes.*

## THE USE OF RADIOACTIVE ISOTOPES IN OTOLARYNGOLOGY\*

HERBERT DUNCAN, M.D.,† Nashville, Tenn.

In this day of news of the destructive powers of the atomic bomb, I thought it would be interesting to record some of the possible benefits which might result from the development of this project.

Our treatment of malignancies in the practice of otolaryngology has been far from satisfactory in the past. I am sure all of you have had patients treated by radiation, either X-ray or radium, in whom the end results were either a failure or the patient was much worse off than before treatment. I first became interested in the use of isotopes by accident. A patient who will be described later, was seen by me in the clinic at Vanderbilt University Hospital. After examination, including X-rays of the sinuses and skull, the report indicated that the patient had a malignancy of the sinuses and skull, too far advanced for the usual radiation therapy.

In discussing this case with Dr. Herbert Francis, radiologist, he suggested using radioactive isotopes, which at that time were first being used at Vanderbilt University Hospital. Since this was all we had to offer, I agreed to discuss it with the patient. This was to be the first case treated with radioactive isotopes, though the natural radioactivity of radium has been utilized for fifty years.

Though the first radioactive isotopes were made by the cyclotron, this was expensive

and time consuming. The atomic center at Oak Ridge and the use of the chain-reacting uranium pile has made isotopes available cheaply enough for wider use.

Isotopes are measured in half-life,—the time required for the disintegration of a radio-isotope to one half its initial rate. The unit of radioactivity is a millicurie, defined as the amount of an isotope that decays at the rate of  $3.7 \times 10^{10}$  disintegrations per second. This is roughly equivalent to a milligram of radium.

Hahn and Sheppard established the following criteria of therapeutic usefulness of the radioactive isotopes: (1) an isotope should be pure and free from contaminants; (2) the "half-life" should be less than ten days and more than two days; (3) the physical and chemical properties must be known and the biological behavior understood; (4) localization and selectivity in deposition are necessary.

Only 18 isotopes in Seaborg's table of 450 isotopes can meet these criteria. At first the isotopes were used by intravenous injection for certain blood dyscrasias.

It was hoped that isotopes could be found which would be deposited in the offending organ or systems or cells, as in lymphosarcoma and leukemia. However, only in some instances of carcinoma of the thyroid and its metastases has this been true.

Since this was the case, the next step was to discover if the isotopes could be injected locally into malignancies. Radioactive materials give off three types of rays,—the beta, alpha and gamma rays. The alpha rays are of minor importance. The beta rays are the most destructive to the malignant growth but are also very destruc-

\*Read at the meeting of the Tennessee Academy of Ophthalmology and Otolaryngology, Memphis, April, 1950.

†From the Department of Surgery, Section of Otolaryngology, Vanderbilt University School of Medicine and Vanderbilt University Hospital, Nashville, Tenn.

tive to normal tissue. Thus, in the use of radium or radon seeds, most of these rays have to be screened out by filters to protect the normal tissue. The gamma rays, less injurious to the normal tissue but also to the malignancy, must be depended upon to destroy the new growth. Therefore by the injection of isotopes into malignant masses, all of the beneficial rays can be utilized without the usual damage to the skin or intervening tissue.

Various isotopes were tested for such use but had certain disadvantages. Manganese dioxide colloids were not useful for several reasons. First, it could be manufactured only by the cyclotron and the cost was prohibitive. In the process of making the manganese radioactive, a small percentage of the finished product contained the 310 day manganese and it was feared that the injection of such material might actually be carcinogenic if it was retained by any particular system. Since gold has been used for years in treating tuberculosis and rheumatoid arthritis, the biology of gold is relatively well known. The isotopes can be prepared from a 100% abundant stable gold isotope, which can be obtained as 24-karat gold with practically no impurities. The gold isotope has a half-life of 2.7 days, an ideal period. It contains a spectrum of 0.97 mev. beta particle and 0.44 gamma ray. It is important that approximately 50% of the beta particles from gold travel about 0.33 mm. in tissue. Thus the ionization due to beta particles is confined to the structures infiltrated or immediately adjacent to the colloid. The substance used in my patients was radioactive gold No. 198.

The chief disadvantage of direct infiltration of a tumor is that certain tumor masses are too friable to retain the injected liquid isotopes. It has been my experience that there is practically no reaction in normal tissues following the injection of the isotopes.

My series of cases is, of course, too small to be of any significance, but I hope this paper may stimulate others to carry on this work and perhaps discover some more favorable method of treating malignancies. I wish to emphasize the fact that all of my patients were in a far-advanced stage and

also had received other therapy without being cured. Because I may be accused of experimenting with human beings, I wish to justify my treatment by stating that patients No. 1 and No. 3 had been refused further radiation treatment and were too far advanced for surgery. Patients No. 2 and No. 4 were offered surgery but refused this and elected to be treated with the isotopes. (This work was first carried out at Vanderbilt University Hospital and later when the project was moved to Meharry Medical School, the patients were treated there.)

At the time of treating my first patient, there were no recorded case reports or instances of similar patients having been treated with isotopes. Therefore, the dosages and interval of injection were on a trial and error basis. At first the isotopes were obtained from Oak Ridge in a very crude form and it was necessary both to concentrate and sterilize the isotope solutions. The first solutions contained only a small amount of material per cc., required in the injection of too large a volume for the desired dosage. Also at first there was no set unit of activity used. The measurements of activity were assessed by a crude Geiger counter and were called a Vanderbilt unit. This was found to be the equivalent of 2.3 millicurie of radium. At present the material is accurately calibrated in millicuries per cc., varying slightly with each shipment. The isotope used now is obtained from the atomic pile of the Argonne National Laboratory and is prepared by Doctor D. L. Tabern of the Abbott Research Laboratories as a sterile, pyrogen-free colloid.

The dosage in millicuries per cc. is determined on receiving each shipment. The amount of the isotope injected is accurately measured in a syringe. All paper tissue, gauze and cotton used on the patient is carefully saved and the amount of the radioactive material absorbed in them is measured. By subtracting the last figure from the original amount, we know how much radiation the patient received. The amount of isotope retained at the site of injection is measured by moving the directional Geiger-Muller counter over the area of in-



jection. By a complicated system of meters, the amount of isotopes in various parts of the body can be determined.

CASE 1—C.S., white male, age 66, was first seen in the Otolaryngology Clinic at Vanderbilt University Hospital on April 24, 1947 with a chief complaint of nasal blockage on the left, and diplopia.

The onset of symptoms was one year previously when he first noticed a lump in his throat which seemed to interfere with his breathing. He also had dysphagia and hoarseness. He was referred to Dr. Guy Maness, who found a tumor mass on the posterior wall of the nasopharynx, and extending into the left posterior nares. Biopsy of the mass proved to be debatable but was thought to be an epithelioma. X-ray films of the sinuses were negative. He was treated with deep X-ray from April 27 to June 19, 1946 with a dosage of 4000 R. to right side and 3800 R. to left side of the nasopharynx. The patient failed to return to either Dr. Maness or the radiologist after completing treatment. He was relieved of all symptoms for four months.

Approximately 3½ months before admission to the Clinic he first noticed a mass just below and medial to the inner canthus of the left eye. This ruptured and drained purulent material but did not recede in size. He began to have diplopia and scotoma after the mass appeared. The left nostril also became blocked. About 3 months previously a mass appeared in the region of the left submaxillary gland and had grown progressively larger. His physician tried to remove the mass from the left nostril but failed, due to profuse bleeding. Therefore he was referred to Vanderbilt University Hospital.

The past history revealed only rather severe hypertension three years previously. This responded to medical management. (His mother died of cancer of the face.)

Physical findings of interest were confined to the head and the lymphatic system. There were several firm masses, 1 x 2 cm. in size on the left forehead in the super orbital region. There were several smaller masses between the nose and inner canthus of the left eye. The eye was deviated laterally by these masses. There was a pterygium of the left eye; there was suggestive papilloedema of the left disk. The ear drums were intact but dull and there was bilateral loss of hearing. The left nostril was completely filled with a white, necrotic appearing mass, extending out of the nostril. The septum was in the midline; the right nostril showed only slight congestion. There was an ulcerated area almost completely covering the posterior wall of the nasopharynx and involving the posterior nares. This area was covered with a grayish, dirty appearing membrane.

A mass 2.5 cm. in diameter, firm and fixed, was present in the left submaxillary region; there were several smaller masses below this. There were no

other palpable nodes in the cervical axillary or epitrochlear regions

The blood Kahn test was negative. Stereo-films in the Waters position showed an extensive tumor spreading throughout the left antral region, the left orbit, the paranasal pharynx and extending posteriorly in the region of the sphenoid sinus. The base of the skull was involved in the frontal fossa; elsewhere no intracranial extension could be seen.

Impression: Extensive malignancy involving the nasopharynx and base of skull. X-ray therapy was not advised, since the condition was too far advanced and hopeless. Biopsy of mass was diagnosed as squamous cell carcinoma.

The first treatment with isotopes was given on May 14, 1947. Novocaine 1% was infiltrated around the tumor masses on face and forehead and into the mass in the left nostril. Nine Vanderbilt units of isotopes were injected into all tumor masses on the face except the mass over the left lacrimal sac. Four units of the isotopes were injected into the tumor mass in the left nostril. The only complaint was slight burning and stinging following the injection.

With fear we visited the patient the next morning. He was in the tub taking a bath and said he was free of pain for the first time in months. By the following week the external masses were markedly reduced in size; and the mass in the nostril had almost disappeared. Therefore 10½ units were injected into the tumors on the face, including the one over the lacrimal sac, and 3½ units into the nasal mass following the same procedure as before. The following week, all of the external masses had disappeared on the face. An abscess had formed over the lacrimal sac. He was breathing well through the left nostril. There was no pain, appetite was good, and he was feeling fine.

On June 11, 1947 the face appeared normal; the abscess and nostril had healed; the mass in the nasopharynx appeared smaller. The left antrum was irrigated and a large amount of pus obtained. Fifteen units of the isotope were instilled through the canula into the left antrum. Three weeks later he was still well, without local recurrences; the mass under the left mandible about disappeared; ulceration in nasopharynx was smaller and seemed to be healing. Four units of the isotope were injected into the turbinate and lateral wall of the left nostril and 15 units were injected into the left antrum. X-ray films showed marked clearing of the soft tissue densities but no change in the bony involvement. (At this time the project was discontinued at Vanderbilt and there were no isotopes available for further use.)

The patient was not seen again until 2 months later when he was still feeling well and had no local recurrences. He was brought in on September 10, 1947 because his general condition had suddenly deteriorated and was irrational at times. The face and nostril still showed no recurrences; the lesion in the nasopharynx was more extensive. There was no pain. On September 22, he

was seen in the emergency room irrational and maniacal. Still there was no local recurrence. He was referred to the Central State Hospital for the insane, being admitted on September 30. He developed pneumonia and died October 24, 1947 without local recurrences. No autopsy was done.

CASE 2.—L.W., colored female, 55 years of age, was first seen on March 27, 1948 with the complaint of nasal blockage of 6 months duration. She had been in an automobile accident, being struck on left side of face previous to onset of her complaint.

Examination of the nose revealed a white, firm glistening tumor mass presenting from the left nostril. This seemed to be attached to the septum and floor of the nose; the site of origin could not be determined. There was deviation of the septum to the right.

A portion of the mass was removed with a snare, with profuse bleeding. Pathologic report was that of mucous polyp from the nose with malignant change,—a transitional cell carcinoma.

X-ray films of the sinuses showed the left antrum to be dense. There was also density in the left nostril; there was probably destruction of the septum in the lower portion. This was thought to represent new growth.

She was treated with deep X-ray, 200 R. over each nasomaxillary area until 3200 R. over each port were given. Three months later the intranasal mass had disappeared and there was no pain nor bleeding.

The patient returned on October 23, 1948 with a recurrence of the mass in the left nostril, which was bleeding. The bleeding was controlled and she was not seen again until December 13, 1948. At this time there was a generalized edema of the left eye lids and left side of the face. The mass was at its original size. The nasopharynx was not visualized. The left ear drum was dull and retracted.

Treatment with the isotopes began December 16, 1948. The nose was anesthetized with 10% cocaine in adrenalin, and 35 millicuries of the isotope was injected into the mass with a long, small calibre needle. As the solution was being injected, the needle was withdrawn so that the solution was injected throughout the mass. Very little bleeding or leakage occurred. This procedure was carried out on January 14 and 21, and February 4 and 11, 1949, using 50, 32, 32 and 36 millicuries of the isotopes respectively. Considerable leakage occurred at the last injection. On February 25, the mass was too necrotic to hold the solution. At this time she complained of marked deafness in left ear. The drum was thick and blue as though hemorrhage had occurred in the middle ear. There was a mass between the nose and inner canthus on the left side; this was very tender, did not pulsate and no bruit was heard. Biopsies were then taken and submitted to both Nashville General Hospital and Hubbard Hospital. From the latter the report was squamous cell carcinoma

with marked coagulation necrosis and bacterial invasion. Nashville General Hospital pathologist reported that there were very few carcinoma cells and these were degenerated.

On March 11, 1949, the mass was very necrotic and about one half was removed with a snare without bleeding. Patient gradually had become weaker until she could not stand alone. There was no history of bleeding from the mouth or nose. Blood studies done on each visit showed a gradual reduction from 4,360,000 RBC-Hgb 13.5 Gm. 10,500 WBC on December 16, 1948—to 920,000 RBC-Hgb 3.7 Gm. and 4100 WBC on March 21, 1949, when she was re-admitted to the Nashville General Hospital. She was treated with blood transfusions and supportive therapy and improved greatly. The mass on her face was aspirated and pus obtained. An exploratory incision was made for a radical, external ethmoidectomy under local anesthesia. Several pockets of pus were found and drained. A probe could be passed into nose and into left antrum. Tumor tissue was found in the entire wound and seemed to be invading about the eye but not posterior to it. The wound was closed loosely. Profuse bleeding occurred both from the wound and nose. She improved after operation and the pain and swelling of the face decreased. Biopsy taken at the operation was reported as hemorrhagic exudate and necrotic carcinoma tissue. She was re-admitted on June 6, 1949 for profuse bleeding. The course had been gradually downhill with a spread of the tumor into the wound and the face. There was a purulent otitis media on the left. The mass in the left nostril did not grow and remained as on March 11, 1949. The temperature rose to 104. She became irrational and died on June 9, 1949.

CASE 3.—J.M., white male, 49 years of age, was first seen on September 6, 1949 with a complaint of a sore on his tongue. The onset was approximately 6 months previously when he first noticed soreness of the left side of the tongue. He attributed this to two bad teeth which rubbed the tongue opposite the lesion. The teeth were extracted but soreness persisted. His family doctor referred the patient to the Tumor Clinic at the Nashville General Hospital.

Examination revealed a tumor mass in the posterior third of the tongue on the left side. This mass extended posteriorly to the base but did not involve the epiglottis; it approached, but did not cross the mid-line. There was an ulcerative lesion anterior to the tumor mass and a slight ulceration of the left anterior tonsillar pillar. No lymph adenopathy was made out. The Kahn test was negative.

X-ray films of the chest and mandible were negative. There was optic atrophy on the left which was not explained by the history nor examination. The rest of the examination was essentially negative.

The patient was treated by deep X-ray. He received 34 treatments of 200 R. each, divided between two parts: the lymph-nodes on the right



and the tongue, the nodes on the left and tongue. Treatment extended from September 8 to October 25, 1949. There was some shrinkage of the mass in the tongue; the tonsillar pillar healed following this treatment.

When seen again on December 7, 1949, the tumor mass had grown to almost its original size. The patient still complained of soreness of mouth. Biopsy of the mass showed it to be similar to the previous biopsy.

The first treatment with the isotope was given on December 16, 1949. This consisted of injecting 2 cc. into the tumor mass, 1 cc. anterior to the tumor and under the ulceration and 1 cc. posterior and lateral to the mass, after infiltration with novocaine. This represented 52 millicuries. The patient complained of rather severe pain following the injection but was relieved by one injection of morphine. The next day patient said the tongue was no more sore than it had been before the injection. He was next seen on December 30. There had been marked increase in the soreness of the tongue and mouth making it difficult to eat solid food. There was enlargement of the left submaxillary gland. Necrosis was present under the left side of the tongue, involving the orifice of the left submaxillary gland. The tumor mass was slightly smaller and necrotic. The ulceration was about the same. Local treatment only was given.

The next injection was done on January 27, 1950. At this time the mouth was not so painful and he was eating better. The left submaxillary gland had receded in size. The ulceration under the tongue was healed, the tumor mass was smaller. The tongue was again anesthetized by infiltration with novocaine. This caused as much pain as did the injection of the isotopes. Four cc. or a total of 72 millicuries was injected as follows: 2 cc. into the tumor mass, 1.5 cc. under the ulcer and 0.5 cc. anterior to the ulceration. There was some pain with this, but it did not require sedation.

He returned on February 10 in severe pain. There was generalized swelling on the left side of the neck; the left submaxillary gland was swollen and tender. There was a recurrence of the ulceration under the tongue and some ulceration of the tonsillar fossa on the left. The tumor mass was smaller in the tongue. There were lesions on the left, lower alveolar margin. He was given codeine for pain. On March 10, 1950 he was eating and resting better, though he could take only liquids and soft foods. There was less pain. The neck was unchanged. The tongue was still edematous; the tumor mass was smaller and more necrotic. There was not a palpable mass in the tongue anterior to the previous ulcerated area. The tonsillar fossa seemed to be healing. The patient is to be followed.

CASE 4.—S.C., colored female, age 57, had been seen at Nashville General Hospital in 1938 with diagnosis of syphilitic ulcer of the hard palate. This perforated the hard palate but healed under antiluetic treatment.

She was first seen by me in November, 1944 when she appeared with large mass in left side of the hard palate. Biopsy proved this to be a mixed tumor of the salivary gland, invasive in roof of mouth. X-rays showed evidence of destruction of the hard palate in the posterior portion.

Surgery with removal of the left maxilla was recommended but the patient refused this and signed out of hospital to resume antiluetic therapy.

She was not seen again until March 3, 1946 when she came in with a history of profuse bleeding. At this time the tumor had grown until it involved most of left side of hard palate. Surgery was again urged, but was refused. In July, 1948 the patient had to be admitted to hospital because of massive hemorrhage. The mass in the hard palate now extended past mid-line and occupied all of left side of the hard palate. X-ray films showed more destruction of the hard palate but no metastasis were made out. She was seen several times during the following year.

She was referred to Meharry for isotope treatment on October 15, 1949. She had injections of radioactive gold on the following dates and in the following amounts:

October 15, 1949—42 millicuries

October 21, 1949—41 millicuries

October 28, 1949—21 millicuries

December 9, 1949—35 millicuries

January 27, 1950—17 millicuries

Various areas of the tumor mass were injected. Each injected area would show necrosis and then healing. The size of the tumor has receded considerably and there has been no recent bleeding from the tumor. The blood counts showed a gradual reduction but not nearly so severe as in case No. 2. The lowest count was 3,840,000 RBC Hgb 9.5 Gm. and 3800 WBC at the end of treatment. The patient is feeling fairly well at the present time.

### Conclusions

(1) Another method of radiation of malignancies has been utilized.

(2) I believe this method would show better results if used in early cases and would not result in as much radiation reaction as that caused by treatment with radium or X-ray.

(3) Much more work and investigation will be required before this method can be generally used.

I wish to express my thanks to Dr. P. F. Hahn of the Cancer Research Laboratories, Meharry Medical College, for his cooperation and for giving me the privilege of carrying out the work.

### References

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## UNIVERSITY OF TENNESSEE SCHOOL OF MEDICINE OBSTETRICAL AND GYNECOLOGICAL CONFERENCE\*

DR. HENRY B. TURNER: In keeping with the concept of our Department that obstetrics and gynecology are inseparable, and together comprise the field of reproduction, we will review two cases in today's Staff Conference—one obstetrical and the other gynecological in nature. Dr. Ralph Bethea, Resident on Obstetrics will present the first case.

DR. RALPH C. BETHEA: R.B., a 16-year-old colored married primigravida, presented herself in the antepartum clinic July 3, 1950. The expected date of confinement was November 15. The course of her pregnancy, up to that time, had not been unusual.

The family history and past history were non-contributory. Examination revealed a blood pressure of 112/70. The bony pelvis was at the lower border of normal limits in the midplane, with adequate measurements otherwise. There was a 1 plus albuminuria. The remainder of the physical and laboratory examinations were within the usual limits of good health.

Seven prenatal visits were made in the ensuing three months and there were no signs of toxemia. At the last visit, on October 17, a blood pressure of 120/84 and a negative urinalysis were noted.

On November 6, she was admitted to the John Gaston Hospital because of labor pains of 5 hours duration. There had been ankle edema recently and occasional headaches.

Physical examination revealed a well-oriented colored patient, in no acute discomfort with uterus at term, having very mild uterine contractions every 15 to 30 minutes. The temperature was 99.4, pulse 78 and respiration 20. The blood pressure was found to be elevated to 190/120. The eyegrounds showed a normal arteriovenous ratio and disc, with no spasm, and gave the impression of very recent hypertension which had not yet markedly affected the eyegrounds. There was a localized grade 2 pulmonic systolic murmur and considerable pretibial edema.

Rectal examination revealed a floating head and the patient was thought not to be in active labor. The Hgb. was 9.5 Gm. and there was a 1 plus albuminuria. Phenobarbital was given by mouth. The usual toxemia hydration treatment was started. Glucose, 1000 cc. of 5% solution in water, was given intravenously at 60 drops per minute. Forced oral fluids, toxemia diet and sedatives were ordered. The head of the bed was elevated 18 inches.

The patient was placed on observation as a severe preeclamptic. The NPN and CO<sub>2</sub> combining power was normal. The total proteins were 5.7 Gm.% with globulin of 2.0 Gm.

Seven hours after admission the patient had a convulsion. The blood pressure was very labile, ranging from 170/110 to 140/90. Sodium amytal was given intravenously for the control of convulsions and eclamptic therapy begun, consisting of phenobarbital grains 3 every 6 hours intramuscularly, sodium amytal, grains 3-3/4 intravenously, as needed for restlessness. In addition the Foley catheter and nasal oxygen were used. The blood was cross-matched; prophylactic penicillin and 1000 cc. of 5% glucose in distilled water were given every 6 hours, the latter at 60 drops a minute.

Observations of blood pressure, pulse, respirations and fetal heart tones were made every 15 minutes. Suction of mucous from the throat and changes of position were carried out as indicated. The fluid intake and output were measured each 6 hours, with urinalysis and other laboratory tests as indicated. An hour after the convulsion uterine contractions were noted each 5 minutes. Fetal heart tones were 150 per minute.

At 2:00 P.M., four hours after the first convulsion and 11 hours after admission, the second convulsion occurred, following which the blood pressure did not respond well to intravenous barbiturates. The membranes ruptured spontaneously. Rectal examination revealed the cervix dilated 1 to 2 cm., station -1, and the labor appeared to be progressing slowly.

A ureteral catheter was inserted into the sub-arachnoid space in the third lumbar interspace after the technic of Tuohy with a reduction in blood pressure from 160/130 to a maintained level of 120/90-105. It was felt unnecessary to further lower the blood pressure and no metycaine was given from 4:40 P.M. until 7:10 P.M. when there was again a rise in blood pressure, which fluctuated for 2 hours at high levels and then gradually dropped under the continuous administration of the spinal anesthesia. Labor was progressive throughout this period, and at 10:25 P.M. on the day of admission, a living male infant was delivered spontaneously, with episiotomy. No oxytoxics were given.

The blood pressure after delivery was satisfactorily controlled with barbiturates, the spinal catheter being left in place until the following day in the event control by spinal anesthesia should become necessary.

Intake for the first 27 hours was 6200 cc. with an output of 1800 cc. The eclamptic regimen was continued postoperatively until noon November 7, when nasal oxygen was discontinued and sedatives were decreased. Twenty-four hour intake was 4750 cc. and output was 4750 cc.

By the following morning the patient took fluid by mouth and was cooperative. Twenty-four hours after delivery the urinary output exceeded the

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intake and remained so for the ensuing 3 days. Highest temperature recorded during the hospital stay was 100.2° on the day of admission. Albuminuria was ranged from 1+-3+. Forced fluids, a low sodium, acid ash diet were given.

In the 2 weeks postpartum the weight loss was 17 pounds within 2½ pounds of the weight at the first prenatal visit at 4 months gestation.

Blood pressure levels ranged from 150 to 125 systolic and 110 to 65 diastolic for the first week postpartum, after this the average was consistently 125/75.

Large fluid exchanges were recorded after full oral intake was possible, the measured urinary output being as high as 10,050 cc. on the fifth day after delivery, with the lowest 24 hour urinary output being recorded as 4190 cc. On the day of discharge, November 22, there was a 1+ albuminuria, blood pressure was 120/75 and the patient appeared in good general postpartum condition. There were no complications from the treatment administered and no spinal after-effects.

The infant succumbed on the sixth day after delivery. Autopsy showed atelectasis and pulmonary hemorrhage.

On January 6, 1951, the patient was seen in the postpartum clinic. Blood pressure was 130/80 and urinalysis was negative. She is at present being followed in the toxemia follow-up clinic, where kidney evaluation studies will be completed.

**DR. TURNER:** Dr. Whitacre has assigned Dr. Oliver DeLozier to record the progress of our Department in the study of the toxemia problem. Dr. DeLozier, would you open the discussion of this case in the light of our present concepts of therapy?

**DR. OLIVER DELOZIER:** The patient presented is not typical of a large part of the group of eclamptic patients studied at the John Gaston Hospital in one important respect. She *did* have prenatal care adequate by most standards, while nearly half the eclamptics seen here have had no care at all. It is interesting that the examiner who saw her last in the clinic, 19 days before her convulsion, had little warning of impending difficulty. She was at that time normotensive, without albuminuria, dependent edema nor excessive weight gain. She is different from the last group of some 40 patients studied, in another respect—she had the first convulsion *after* the beginning of treatment. Only one other time in the past year has this occurred, the therapeutic regimen used apparently having been successful in preventing this accident in most severe preeclampsics.

The handling of eclamptic patients is, as stated before by Dr. Whitacre, necessarily alert, intensive, and highly individualized. The details of treatment of this patient illustrate, however, most of the measures commonly employed at the John Gaston Hospital. Sedation was with barbiturates alone, the basal phenobarbital being supplemented with intravenous sodium amytal. The use of morphine at this institution was stopped long before its theoretical undesirability in the treatment of eclampsia was pointed out by Brown and his coworkers. When the barbiturates proved ineffective in lowering the blood pressure, continuous spinal anesthesia was started. This procedure, the use of which was pioneered here in Memphis, is of great benefit in the handling of the eclamptic patient. In instances where extreme hypertension exists, and cardiac decompensation or cerebral accident impend, the rapid lowering of the blood pressure in effect may well be life saving. It is, in addition, useful during labor by eliminating the pain of the uterine contractions from the sensorium of the patient. From the standpoint of the fetus, its employment is desirable, since the depression caused by sedation of the mother need not be compounded by the depression of general anesthetic.

Another important feature of the therapy used is the infusion of large amounts of isotonic glucose. It is our belief that most eclamptic patients, when first seen, are dehydrated and acidotic despite the edema usually present. Their secretions are thick and tenacious, their urine highly concentrated, the hematocrit is usually elevated, and the carbon dioxide combining power depressed. We have found that with proper safeguards, elevation of the head of the bed, the very slow administration of intravenous fluid in large quantities is uniformly beneficial and entirely safe. In the case of this patient, delivery fortunately occurred within a few hours of admission. It is interesting to note that over a period of a few days, in the face of intakes as great as 9½ liters daily, there was progressive clearing of edema and rapid clinical improvement.



DR. TURNER: Dr. Riley Houck and Dr. Richard Overman, of the Department of Pathology, have worked in close cooperation with our Department in the study of toxemia for a number of years. Dr. Houck, would you care to discuss the case for us?

DR. RILEY HOUCK: I would like to start by asking a couple of questions which might give me a little bit of information.

I am surprised at the large amounts of fluid you are giving intravenously. I know that the treatment of the nephrotic syndrome at different institutions in the country by large isotonic glucose or isotonic saline infusions, has met with some disaster largely through the production of pulmonary edema. I would like to ask whether you have had any evidence of pulmonary edema in any of your patients treated with large volumes of isotonic salines? This is certainly something to be watched for when giving large amounts of isotonic solutions.

Dr. Bethea, you said it was administered at 60 drops per minute. It must be remembered that if this is put in an arm vein the pulmonary circulation is the first to receive this fluid. If it is put in too fast, in too large quantities, the plasma proteins are reduced, the oncotic pressure is reduced, and at the same time you build up the hydrostatic pressure in the lung capillaries and there is danger of pulmonary edema. Just remember that this solution you are putting in goes to the lungs first before it has a chance to be mixed with the general circulation, and even though you do have adequate kidney function you may have the danger of pulmonary edema.

The surprising thing to me is why the child succumbed. I know that's one question,—and the appearance of the toxemia symptoms in the mother is another question.

I would like to ask something about the eclamptic diet. Is this chiefly a low salt diet and a low protein diet?

DR. TURNER: To allow time for the presentation of the second case, I will ask that questions and answers concerning the first case be deferred until later.

It would be interesting to learn something as to the toxemia problem in the pri-

vate hospitals of the city. Dr. Atherton, you are on the staff of the Baptist Memorial Hospital. Would you tell us something of your management of these cases in that institution?

DR. H. E. ATHERTON: Dr. Turner, our problem at the Baptist Hospital is much like it is at the John Gaston. We find a considerable number of toxemias but few eclamptics in the patients who are under the care of the staff doctors during their prenatal course.

In a 4 year review of our eclamptics it was surprising to find 37 eclamptics among 8,790 deliveries. We had 72 preeclamptics and 93 cases of mild toxemia in this period. Certainly we have missed a number of patients who had mild rises of blood pressure and a minimum of albumin in the urine. These patients are admitted in labor and delivery usually cures them.

Our treatment of preeclampsia and eclampsia is very much the same as is carried on here at John Gaston, though there are fewer cases (10 instances) in which conduction nerve block is used. Of the 37 eclamptics, 13 were postpartum convulsions. Most of our doctors still use some form of barbiturate and nearly all employ magnesium sulfate to control vasospasm, either orally or parenterally, and depend upon hypertonic glucose solution (largely 20% in distilled water) to promote diuresis. All cases are given a period of conservative treatment before resorting to radical procedures, but in most instances the pregnancy is terminated either by induction of labor or section, if the patient is approaching term.

Though hemorrhage is responsible for more deaths than toxemia in most institutions, in 4 years at the Baptist Memorial Hospital, 6 of the 10 maternal deaths were caused by toxemia. Of these 6 (necropsy being done in most instances) there was one case of cortical necrosis of the kidneys one of a cerebral hemorrhage and two of the lower nephron syndrome. These 4 were unavoidable deaths.

Though we speak of *unavoidable death* in toxemias, toxemia may be prevented by more careful prenatal care. However, two

things have us licked in our toxemia patients. So far as I know, we have not been able to save a case of cortical necrosis of the kidneys, and the therapy for the lower nephron syndrome seems to be inadequate.

I have computed no percentages on the incidence of eclampsia as compared to the total number of deliveries, but I am certain the occurrence of eclampsia in private practice is less than it is in charity practice, simply because the physicians in charge either improve the toxemia or interrupt the pregnancy before the patient becomes eclamptic. In your situation here at the John Gaston, all too often the eclamptic patient is admitted here as a last hope that something can be done for her, when she has had little or no prenatal care. The house staff is doing an excellent job in obtaining a very low mortality.

I've enjoyed this conference very much, Dr. Turner.

DR. TURNER: Dr. Roach is Chief of Obstetrics at St. Joseph's Hospital. Dr. Roach, would you care to add to our discussion this morning?

DR. MICHAEL J. ROACH, JR.: I would like to discuss the medical treatment of eclampsia, which certainly should take precedence over any obstetrical or gynecological treatment. I would like to discuss it in three phases: First, control of convulsions, if present; second, water balance; third, acid base equilibrium.

1) At St. Joseph's we prefer to control convulsions by intravenous barbiturates, preferably nembutal usually successful in our experience. However, if this fails, we believe in reverting to regional block in selected cases.

I am glad to see that in this institution—where we have swung from one end of the pendulum (regional block in every eclamptic who came in) to the other end of the pendulum (when we did so reluctantly)—we have finally swung back to the middle of the road and are using regional block when indicated. In this particular case for the convulsions and the pressure which were not controlled by sedation.

2) Regarding water balance, Reed and his group at Harvard have shown that in

the third trimester of normal pregnancy there is an increase in the extravascular (fluid) compartment at a greater rate than the increase in the vascular compartment. This extravascular increase continues to term, whereas the vascular increase reaches its peak about 8 weeks before term and then drops. In eclampsia these normal changes are altered. There is marked increase in the hydration of the extravascular compartment, with an absolute or relative decrease in the vascular component. We should attempt to reverse this abnormal increase in extravascular volume by such things as hypertonic glucose or plasma (the Harvard group is using salt-free albumin) but it is questionable if any of these, save perhaps albumin, make any notable change. The action is fleeting and often ends with an effect opposite that desired.

There is another way of stating this. Actually we have a dehydrated patient, because in spite of increased extravascular volume and even marked edema in the extremities, the fluid is not available to the kidneys. In dehydration, whether it be from unavailable fluid or absolute lack of fluid, sufficient fluid must be made available. Fluid must be sufficient to take care of insensible perspiration and absolute dehydration, when present, before any fluid is made available to the kidneys. Insensible perspiration and absolute dehydration take precedence over fluid available to the kidneys.

We have had good results with the so-called "wash out technic"; plenty of fluids for renal action are assured to increase the urine volume and to carry out sodium with this increased volume. This technic has been used at John Gaston and at St. Joseph's. Fluids are forced to tolerance by giving 4000 cc. of 5% glucose in water every 24 hours, or 1000 cc. every 6 hours.

Some bad results have been reported from overhydration, but analysis shows them due to injudicious amounts exceeding 1000 cc. in a 6 hour period. (Some have used as high as 4000 or 5000 cc. in less than 6 hour periods.) We force fluids by giving 1000 cc. of 5% glucose every 6 hours until diuresis is established, or until mild pul-



monary edema ensues. At St. Joseph's we have been fortunate (and also at John Gaston) because diuresis has occurred before pulmonary edema.

If pulmonary edema does occur fluid must of necessity be reduced to that needed for insensible perspiration, plus urinary excretion in the previous 24 hours. If pulmonary edema becomes marked it can usually be controlled easily by regional block, since one of the first effects of block is to reduce blood volume and pulmonary edema.

Coller and his group at Michigan have shown that in the face of absolute dehydration before diuresis can be produced, dehydration must be made up by the introduction of fluids. This is an important point.

Often what the internist wants to call interstitial or toxic nephritis is, in reality, insufficient fluid. Coller has reported cases in which the giving of fluids calculated for the control of dehydration and for insensible perspiration have failed to produce diuresis. This is the type of case, or the stage in the treatment in which the internist calls it a "toxic" kidney. Coller, feeling he had miscalculated, continued to force fluids and shortly produced diuresis which progressively increased with increasing fluids, indicating he had not overcome the dehydration.

We believe that the problem of dehydration in eclampsia is similar. Physiologists may differ with my opinion, but eclampsia is a disease of theory anyway, so we may theorize a little. Even though there is an increase in the extravascular component and marked edema, we feel this fluid is not readily available to the kidney. With the "wash out technic", once diuresis is instituted and fluids begin to shift from the extravascular to the vascular compartment, cerebral edema, the tendency to eclampsia decreases, and the urinary output increases.

3) I want to merely state the high points so far as acidosis is concerned. It is known that most patients have a relative alkali deficit when they reach or approach term; in other words, most of them are in a potentially acidotic state. The carbon dioxide combining power is, if not definitely

lowered, certainly on the verge of being lowered. These patients can very easily go into acidosis and the eclamptic patient, especially. The acidosis affects renal output and thus should be cleared up. Actually, acidosis itself, without eclampsia, will produce shock. Undoubtedly many patients with eclampsia who have died in a shock-like syndrome have died more from acidosis than from eclampsia. Therefore, it is important to relieve the acidosis. In its treatment there are two important considerations. One is the prevention of acidosis in long labor; in eclamptics it can be combated by glucose solution. The other is that once definite acidosis is present, glucose is very ineffective and nothing short of molar lactate solution will be helpful. In spite of the fact the patient is waterlogged in eclampsia, no method offers more than molar lactate solution in combating acidosis.

DR. TURNER: The second case will be presented by the Resident on Gynecology.

DR. BLANCHE LOCKARD: This is a case of a 48-year-old colored female who was first seen in the clinic in April, 1950. She had noticed for the past 10 years a gradual increase in size of the lower abdomen, which was associated with a dull, aching pain. During the past 4 months she complained of a constant, dirty, white vaginal discharge, occasionally spotted with blood.

A review of the systems was negative except for slight burning on urination. She denied any previous serious illnesses but described several perirectal abscesses which had been incised 10 years ago. She was a gravida III, para II, having had one abortion. The menopause occurred 15 years ago at the age of 33 years.

The pertinent finding on physical examination was a soft, non-tender mass in the right lower quadrant of the abdomen, extending to the level of the umbilicus and toward the midline. On pelvic examination, the vaginal mucosa appeared atrophic and there was partial stenosis of the proximal portion of the vagina. The cervix was centrally located and quite firm, with an excoriated lesion near the external os which bled easily. In the right fornix the cystic mass described above was felt to arise from the right ovary and was estimated to be 15 cm. in size.

The patient was admitted to the John Gaston Hospital for removal of this right ovarian cyst. On re-examination of the pelvis, a biopsy of the cervix was taken which was reported as squamous cell carcinoma. According to the classification of the League of Nations this was, clinically, a Stage I lesion.

The hemoglobin was 11.5 Gm., red blood cells 3.8 per cmm., white blood count 8500 per cmm. with a normal differential. Urinalysis was negative except for numerous white blood cells.

During May of 1950, she received a total tumor dose of 3000 roentgens through 6 ports, and in June was treated with radium, receiving 6720 mg. hours.

The patient was followed monthly in the Cancer Clinic, and after healing of the acute radiation necrosis no residual diseased tissue could be palpated. The large cystic mass persisted in the right lower quadrant of the abdomen and on January 3, 1951 she was readmitted to the hospital for laparotomy. Her general physical condition was good and she had gained 10 pounds. Six days ago a total hysterectomy and bilateral salpingo-oophorectomy was done. Pathological examination of the tissues revealed radiation necrosis of the cervix and a right ovarian cyst filled with serous fluid and lined by thick, fibrous walls. No tumor cells were described in the cervix. Her post-operative condition has been good.

DR. TURNER: Dr. Lawrence Bellew, our Senior Resident, has been asked to open the discussion of this case.

DR. LAWRENCE N. BELLEW: This case brings up many interesting points for discussion in our method of treatment of carcinoma of the cervix. I would like to mention three points just briefly, and ask three or four questions.

The first point is that of diagnosis. This always comes first, and I would like to repeat that this carcinoma was found incidental to other pelvic pathology. Further study of her history, as brought out in the case presentation, reveals what we might consider a "textbook" picture or symptomology for carcinoma of the cervix. She had a history of vaginal discharge for 3 or 4 months. The second point, probably most commonly found with carcinoma of the cervix, is a history of vaginal bleeding. Thirdly, she had an ulcerative lesion on the cervix.

This combination of findings demands a biopsy of the cervix, and only on suspicion and frequent biopsy will we pick up cancer, particularly as early as this one.

Another matter is adequate treatment. There seems to be considerable confusion in the literature as to what is adequate treatment for carcinoma of the cervix. In a recent review on the progress made in gynecology in the last 5 years, 9 pages

were concerned with carcinoma of the cervix, primarily with various methods of treatment. This runs from X-ray irradiation alone to X-ray combined with vaginal cone X-ray, X-ray combined with radium, and even with supervoltage for X-ray. On the surgical side we have described from primary so-called radical surgery of the Wertheim type, many types of pelvic lymphadenectomies, on to complete exenteration of the pelvis.

I would like to say that we believe our treatment of this particular case was adequate, but we might have a question on that when we come to the discussion.

Briefly, I would like to emphasize the fact that cancer is not infrequently found incidental to other pelvic pathology. The fact that the patient has a fibroid, an ovarian cyst, or some other pathology, does not rule out cancer, and we must continually be alert.

There are several questions I would like to bring up for discussion: 1) the question of cancer with other pathology; 2) re-emphasis of the importance of biopsy as our only adequate means of diagnosis at present; 3) the question of X-ray therapy, surgery, or their combination; 4) a fourth question of interest, not only in this case, but in the treatment of carcinoma of the cervix, is some definition of *what* is considered adequate therapy for carcinoma of the cervix.

DR. TURNER: Thank you, Dr. Bellew.

Dr. Brockman, you are Senior Staff Consultant on Gynecology this quarter. Do you wish to add to this discussion?

DR. JAMES M. BROCKMAN: Dr. Turner, there are several things which could be added in a case of this kind. First, we have some very definite opinions in regard to cancer of the female genitalia, and particularly with regard to cancer of the cervix.

In general, I think the most radical treatment possible (consistent with the diagnosis of cancer) should be attempted in every case. There is no treatment at the present time which I feel has been an improvement over the treatment of the last 20 years. We are still using radium, we are still using X-ray, and at the present we see a resur-



gency of surgery even in quite extensive cases.

An early diagnosis of cancer, with radical treatment is going to give us a higher quotient of living patients. If one analyzes statistics in general, one finds that "across-the-board" statistics haven't improved particularly. However, in Stage O (intra-epithelial carcinoma), Stage I, and early Stage II cases, the longevity of patients has been increased considerably, and this is still carrying the load for our Stage III and Stage IV cases.

In this particular case, I think the diagnosis was made as early as was consistent with the patient's coming to the Clinic. However, with a discharge of 4 months, we might say she was 3 months too late getting there.

In regard to her radiation therapy, I would like to ask why only 3,000 roentgens were given since at least 6,000 or possibly 8,000 roentgens are indicated, even in addition to the 6,000 mg. hours of radium. If you are going to treat cancer, be radical. The follow-up treatment in this patient will be that of any patient of this kind. We will not know whether she is well until she has lived long enough to prove it. We are called upon to recognize cancer at its earliest, and the public should be called upon to bring themselves to the doctor as early as possible so that an early diagnosis may be made.

Here at the John Gaston Hospital we consistently have held that Stage O (or intra-epithelial carcinoma) be treated as a carcinoma and not repeatedly biopsied, as is sometimes suggested. If the pathologist is firm enough in his opinion that the tissue sent him is carcinoma, we in our Department should treat the patient as having carcinoma, and this is what we do. I do not believe we should continue to play around with carcinoma in situ, or intra-epithelial carcinoma.

In a recent issue of (I believe) the American Journal of Obstetrics and Gynecology there is a report of a case followed 14 years, with repeated biopsies and later proved to be an undeniable case of carcinoma. I believe this is letting a patient go a little far.

The whole problem of cancer is going to resolve itself into two factors: First of all, finding the cause. Secondly, having seen cases which were apparently inoperable (particularly carcinoma of the ovary) who have gotten well and remained well, we believe there is some resistant factor in some individuals which might, if found, give us an idea how to cure carcinoma. These patients cured themselves—I don't think *we* did—but they furnish us with an idea we all need to know more about.

DR. TURNER: Thank you, Dr. Brockman.

Dr. William Black is also a member of the Department of Gynecology. Did you see this patient, Dr. Black, or would you care to comment on the treatment?

DR. WILLIAM T. BLACK, JR.: No, I did not see the patient and heard the case presented here for the first time.

There are a few questions I would like to bring up, however. One is, no mention was made in the presentation of the case report as to whether or not any palpable glands were found in the pelvis when the total hysterectomy and bilateral salpingo-oophorectomy was done. If they were found, I think a more radical procedure could have been done, such as a Wertheim or modified Wertheim operation.

You stated that the patient had a Stage I carcinoma of the cervix, meaning it was localized to the cervix. The only point I would like to make is that there have been reported cases in which the cervix appeared completely normal and the carcinoma could have been in the endocervical region. Consequently it might have been unnoticed upon routine pelvic examination with a speculum. The question arises as to whether this could appear on the surface as a Group I lesion, but underneath be more than a Group I, with extension from the endocervical region laterally. If so, we could expect to find palpable nodes in the pelvic cavity.

Another question arises as to whether or not the Department felt that this patient was to be completely treated with irradiation alone and have no laparotomy in the future.

Dr. C. R. Green and I reported a 10-year study (from 1940 to 1950) of carcinoma of the cervix. We found there had been 548 cases of carcinoma of the cervix in the Gynecology Clinic during this time. Of this group, 6% were in Group I (33 cases); 25% in Group II (138 cases); 37% in Group III (202 cases); and 30% in Group IV (167 cases). Eight, or 2%, were unclassified.

It is unusual to find a Group I carcinoma of the cervix. In the cases of Groups I and II, the staff now is doing more radical surgery; we have learned to depend upon surgery rather than irradiation alone in early lesions. The combination of both is a very good form of treatment in early cases. As you know, Groups III and IV are usually so far advanced it is unnecessary to attempt surgery for many reasons.

DR. TURNER: Dr. Henderson, of the Department of Radiology, is with us this morning. Dr. Henderson, would you comment on the radiation therapy in this case and answer Dr. Brockman's question concerning the amount of radiation given?

DR. ROBERT HENDERSON: Regardless of the stage, we assume there is carcinomatous tissue of the parametrium. The local lesion and the few centimeters of tissue around the cervix are easily controlled by radium alone. We design this treatment to give a 3,000 roentgen tumor dose to the parametrium in 4 weeks, using six 6 x 15 cm. ports, two anterior, two posterior and two sacrosciatic or posterior oblique. We use an X-ray quality of 1 mm. copper half value layer and a target skin distance of 50 cm. By taking careful measurements of the pelvis and using standard depth dose tables and isodose curves, we calculate the air and surface dose necessary to deliver the tumor dose in one month. 3,000 roentgens in air to each of 6 ports is about the average amount of X-ray required. This results in a skin dose well below tolerance, but the volume dose of 25 megagram roentgens is about the upper limits of tolerance for the individual. And when this volume dose is added to the volume dose delivered by radium it, and not the skin tolerance, is the limiting factor.

The dose described is not cancerocidal,

but if the radium therapy is designed to throw a large dose into the parametrium, the two then become sufficient to be a tumor lethal dose.

In reply to the question as to whether this is enough X-ray to the parametrium, as I said we report the tumor dose and not the skin or air dose. Actually we are giving around 8,000 roentgens, if you express it by the air dose method.

DR. TURNER: Thank you, Dr. Henderson.

Are there any others who would care to discuss this very interesting case?

DR. PHILLIP C. SCHREIER: The immediate reaction I have to the problem presented by this case is that it could have been satisfactorily handled surgically. The pelvic masses were undoubtedly surgical and the cervical carcinoma likewise regarded as manageable with surgery. However, there is an unknown factor which evidently was in the minds of the attendants, namely, whether there was invasive carcinoma beyond the cervix.

In regard to the question of intra-epithelial carcinoma, we are fortunate in having men of wide experience study our biopsies. This, unfortunately, is not and cannot be true in all places. The diagnosis of carcinoma in situ is an elastic one, and criteria are so variable, depending upon the pathologist. I have therefore usually been conservative and have requested another pathologist's opinion when the patient is young and her organs still have important functions.

As to the treatment of invisible carcinoma with irradiation or surgery, it was challenging to hear Dr. Archibald Campbell, who was recently in Memphis and whom I think would be regarded by all as a most competent surgeon, say that the results with irradiation in his hospitals revealed an over-all 5-year cure of 35%. He regards this as better than anything surgery can do.

I feel that what we need is more intelligent judgment in the use of roentgen and radium application in many places. Clinics which have been directed by expert leadership for the past 10 years have encouraging reports. It is likewise probable that when



qualified surgeons treat their cases surgically, modern statistics (as they become available) will be better than those already accumulated. Under such ideal circumstances, both methods of treating cancer of the cervix will have clean-cut indications.

DR. TURNER: Thank you, Dr. Schreier.

And now shall we return to some of the questions brought out on the first case presented?

Dr. Houck, you asked if we had encountered any cases of pulmonary edema in our present treatment of eclamptic patients. So far as I know, we have not. Is that correct, Dr. DeLozier?

DR. DELOZIER: So far as I know, Dr. Turner.

DR. TURNER: Are there any here among the Resident Staff who know of any cases of pulmonary edema we have encountered in the treatment of our eclamptic and severe preeclamptic patients by the method of hydration which we are investigating at the present time?

Apparently not, so we will bring up Dr. Houck's second question: Why the death of the child? That is a very good question and I do not believe that even with post-mortem examination it has been adequately answered. Dr. Bethea, would you comment on that? You have studied the record.

DR. BETHEA: The question may be answered by reviewing a little of what we know happened to the child. During labor the fetal heart tones were irregular; at times the rate was as high as 176. Generally it was about 150. There was delayed respiration at the time of delivery, and trachial catheter and oxygen resuscitation were necessary. The baby was seen by a pediatrician about 2 hours after delivery and thought to be in poor condition due to the impaired respiration, though the chest was clear. Two days after delivery convulsions occurred, and from then the condition deteriorated. The post-mortem findings of atelectasis and pulmonary hemorrhage were those usually found in this type of case.

DR. TURNER: The third question Dr. Houck asked refers to our so-called toxemia diet. Dr. DeLozier, would you tell us what this diet is at the present time?

DR. DELOZIER: The toxemia diet used here at the present time is one of 100 Gm. protein, 500 mg. sodium, acid ash and containing 1,200 calories.

DR. TURNER: Are there other questions pertaining to the case of toxemia?

In regard to the second case, Dr. Brockman asked: Why only 3,000 roentgens of external radiation? Has Dr. Henderson answered your question, Dr. Brockman?

DR. BROCKMAN: Yes, he has. That was the cancer dose delivered, rather than the total dose of roentgens given, which of course would answer our questions. As I believe he said, he gave 12,000 roentgens entirely and only the 3,000 was calculated to reach the lesion itself, which would be considered adequate.

DR. TURNER: That is correct, isn't it, Dr. Henderson,—the 3,000 is the tumor dose as differentiated from the air dose?

DR. HENDERSON: Yes, 3,000 roentgens is the tumor dose. The air dose in this particular case was 16,020 roentgens.

DR. TURNER: Dr. Black asked,—at the time of laparotomy in the second case, were glands palpable and were lymph glands noted in the pelvis?

DR. LOCKARD: No glands were found.

DR. TURNER: The second question Dr. Black asked was,—originally was it anticipated that radiation alone was to be the treatment of choice in this case, or was eventual laparotomy envisioned?

DR. LOCKARD: I think eventually laparotomy was planned following adequate treatment with radiation and radium.

DR. TURNER: In other words, the ovarian tumor was disregarded, the carcinoma of the cervix was treated, and then at a later date laparotomy was done for the ovarian tumor. Is that correct?

DR. LOCKARD: That is correct.

DR. TURNER: Are there other questions concerning the diagnosis, management and treatment of the second case?

DR. BROCKMAN: Dr. Bellew brought out a point which I think warrants consideration; that is, coincidental pathology with cancer. I think the answer to that is, you should treat the cancer and then worry about the other pathology later. However, in his incidental finding of cancer of the

cervix with the ovarian pathology, we must remember one point. Unless we ourselves are cancer-conscious, cancer of the cervix is going to be overlooked in favor of the more gross pathology evident in the patient.

I think another point could also be made. Any woman past the menopause who has a lesion of the cervix should have a biopsy regardless of symptoms. In the younger woman you have more choice regarding biopsy. The point or type of biopsy is immaterial so long as you get adequate tissue for study and do not overlook the fact that it is potentially carcinoma until proven otherwise.

DR. TURNER: You have answered, then, the first two of Dr. Bellew's questions, the inter-relationship of carcinoma and other pelvic pathology, and also the question of *when* to biopsy the cervical lesion.

He put a third question regarding the choice of treatment of carcinoma of the cervix at the present time. Will you comment on that?

DR. BROCKMAN: It would go back to a point I stressed previously, the fact that all treatment you can give a patient is still too little. We like to assume when a diagnosis of carcinoma of the cervix can be made pathologically, there is probably one cancer cell floating around somewhere else in the body. When that happens we are just a little bit too late. If we assume that attitude, we feel that everything the radiologist has to give, together with the maximum dosage of radium, should be given the patient. Then, if the condition is operable, surgery is also indicated. After all, we are still trying to make people live longer, more comfortably and more happily. Unless we concentrate on that point, I don't believe we are going to reach the conclusions we want until we know more than we do at present.

DR. TURNER: Thank you, Dr. Brockman. That has not only answered Dr. Bellew's third question but also his final question as to *adequate treatment*.

DR. BLACK: If I heard Dr. Brockman correctly, he stated that *any* post-menopausal patient is deserving of a biopsy at any time.

DR. BROCKMAN: Yes, if the patient has a lesion of the cervix.

DR. BLACK: *Any* who have a lesion of the cervix?

DR. BROCKMAN: Yes.

DR. BLACK: I dislike bringing up so many statistics, but having reported this just recently I think it is worth mentioning that of our 548 cases of cervical carcinoma in the past 10 years, we found that the post-menopausal patients were only 23% of the total, whereas the pre-menopausal lesions were 48%, and the menopausal lesions 29% making 77% of the 548 cases either pre-menopausal or menopausal, and only 23% post-menopausal.

A paper written by two Philadelphia doctors mentioned that delay in making a diagnosis of cervical cancer is a major factor in the poor end results. The delay may be attributed to the physician as well as the failure of the patient to seek examination at the first sign of an abnormal condition.

In a study of 1,000 cases of pelvic carcinoma in 21 Philadelphia hospitals, Howson found that in 276, or 27.6%, physicians had delayed in making a diagnosis one or more months following the first visit of the patient. The average delay in the entire group was 14.9 months, and in cervical cancer it was 7.4 months. Strangely, the diagnosis was delayed the longest in patients with the most accessible lesions. The chief single cause of delay was the failure of the physician to make a pelvic examination in the presence of pelvic symptoms. The reasons for this failure were: first, the presence of active vaginal bleeding, and second, the use of medication for symptomatic relief of pelvic complaints on the assumption that they were of menopausal origin.

Pursuing the study further, Howson and Montgomery discovered that in 50% of the pelvic carcinomas no local examination was made. In the other 50% the examination was made though the diagnosis was wrong. Another common cause of delay was the performance of inadequate surgery before carcinoma had been ruled out by proper study.



DR. ROACH: I thoroughly agree with Dr. Brockman's ideas, one of which I wish to emphasize. These young men and women will, we hope, go out and become leaders and teachers so some of the things I am going to say now, while they seem to be academic, nevertheless are most important.

The diagnosis of cancer of the cervix, incidental to other conditions, requires first, that you put a speculum in the vagina and look. That may seem an unnecessary statement to make to this group, but far too many well-trained men who should know better are still missing diagnoses because they are not looking at the cervix. Second-

ly, having put a speculum in the vagina, visualize that cervix *intelligently*, instead of making the placing of a speculum and looking just a matter of routine. Thirdly, when lesions are present, take a biopsy.

These things may sound more or less academic to this group, and they are. As I said before, you are the group, we hope who will be teachers and leaders and who must emphasize these points to students and interns at every opportunity. It is something that *must* be impressed upon them.

DR. TURNER: Thank you, gentlemen. Are there any other comments? If not, we will be dismissed.

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**The Management of Fibromyomata Uteri. Mauzy, C. H., Lock, F. R., and Donnelly, J. F., Am. J. Obst. & Gynec., 61:32, 1951.**

Fibromyomata uteri, or uterine fibroids, are the most common tumors to be found in the female. Novak states that 20% of women over 35 years of age have such tumors. The location of these tumors is extremely variable, and a number of symptoms may be caused by them. Likewise it is true that many fibroids are asymptomatic and the host does not recognize their existence. Frequently symptoms are attributed to fibroids when they are in no way related. The symptoms of fibroids *per se* are abnormal bleeding, pain, or pressure. At the beginning of the study the authors ask themselves a question, "Is our management of fibroids radical or conservative?"

In conclusion, the authors feel that in the past the management has been relatively conservative and as a consequence our patients have benefited. However, it is also apparent that the conservative approach could have been extended further with equally good results. The most striking finding in this study has been in the group labeled "observation." Eighty-eight patients have been followed and have required no radical surgery. Eighty-two of these have not only avoided surgery, but have improved. This seems particularly fortunate in that twenty-seven of the patients in this group had previously been advised elsewhere that an operation was necessary. The authors believe that the

majority of surgeons, some in our own specialty, are still unwilling to accept the fact that most uterine fibroids cause no symptoms and can be managed by observation alone. Myomectomy must always be considered in a woman of childbearing age with fibroids requiring interference. The authors' series is small but seems to demonstrate that extensive surgery can be performed on a uterus without destroying its usefulness. There has been only one case of sarcoma occurring in a fibroid in this series, a fact which coincides with the findings of others. The incidence of sarcoma is just as low as the operative mortality for hysterectomy. This fact cannot be emphasized too strongly since it should reduce the urgency for surgery.

The authors have performed or recommended hysterectomy in sixty-seven cases, or 26.4 per cent. This is approximately one in every four cases seen in a consultative practice of only white patients. A critical review of our findings in the operative group correlated with the symptomatology seems to indicate that in twenty-six cases the operation was not wholly justified. Exclusion of these cases would have reduced the incidence of surgery to 16 per cent. Neither the size of the tumor nor the age of the patient need be considered in the expectant treatment, as most tumors will regress in the postmenopausal period. Rapid growth, bleeding, pain, and marked pressure symptoms seem to be the most reliable signs indicating surgery.

(Abstracted by Hamilton V. Gayden, M.D., Nashville, Tenn.)

## THE JOHN GASTON HOSPITAL CLINICAL PATHOLOGICAL CONFERENCE\*

### History

G.C., a 45-year-old, white male taxi driver, was admitted to the John Gaston Hospital on February 15, 1950, because of jaundice, chills and fever during the preceding four weeks. He had been hospitalized for six days at St. Joseph Hospital early in his illness where a diagnosis of infectious hepatitis was made. Following this, his stools had alternated from white to yellow in color at least three times and he had noted a simultaneous fluctuation in the color of his urine. The patient reported severe chills and fever during the week before admission though he alleged that his jaundice was less severe than previously. Itching was moderate. No history of alcoholism, dietary inadequacies, previous similar illnesses, abdominal pain or antecedent upper or lower GI symptoms was elicited.

Physical examination on this admission disclosed a well developed, well nourished deeply icteric, cooperative, middle-aged white male with the liver 5 to 6 cm. below the right costal margin in the midclavicular line (slightly tender but not firm or nodular), splenomegaly (2 cm. below the left costal margin on deep inspiration), blood pressure 114/64, pulse 80, with negative findings in other systems.

Pertinent laboratory findings on this admission were: 1 to 2+ albuminuria, foam test for bile strongly positive, urine negative for glucose, hematocrit of 32 vol. % with a buffy coat of 0.7 mm., sed. rate 0.8 mm. (corrected), stool negative for occult blood and weakly positive for urobilinogen. Prothrombin time was 100%, 1 minute serum bilirubin ranged from 17.6 to 45 mgs. %, urine urobilinogen negative in all dilutions, cephalin flocculation test negative at 24 hours with 2+ at 48 hours; repeated blood cultures negative except for one on February 17, 1950, which was positive for *E. coli communis*; dark field examination for *Leptospira icterohemorrhagic* negative; cold agglutinins, positive through 1:4 dilution; heterophile agglutinations positive through 1:4 dilution; serum amylase of 421 and 231 on two successive days; inorganic phosphorus 3.7 mgm. %; blood cholesterol 196 mgms. %; RBC of 3,780,000 with a Hgb. of 11.5 Gms. % and a differential showing 37% lymphocytes, 32% non-filamented neutrophils and "slight shift to left." Laboratory procedures earlier at St. Joseph Hospital revealed an icteric index of 150, negative qualitative urine urobilinogen, alkaline phosphatase of 6.7 Bod. units and negative cephalin flocculation test at 48 hours.

X-ray studies disclosed the heart to be within normal limits. Some fibrotic changes were noted

in both lung fields with some flattening of both leaves of the diaphragm. The liver border was noted to be at the crest of the ilium on the right but the splenic shadow was not well outlined. No calculi were noted in the kidney, uterine or gall-bladder regions. Both upper and lower GI studies were negative.

A needle biopsy of the liver on February 17, 1950, revealed evidence of obstructive jaundice but the tissue was regarded as insufficient for accurate diagnosis.

On March 1, 1950, a laparotomy was done. Following this, there was gradual clearing of his jaundice. The one minute and total serum bilirubin were 4.2 and 10.3 respectively on the tenth postoperative day, at which time he was discharged to the OPD. From April 6 to July 6, the patient was followed in the GI Clinic. He regained his usual weight and remained relatively asymptomatic though he never regained sufficient strength to resume his job. He then lapsed from observation and was not seen again until November 7, at which time he was readmitted to the John Gaston Hospital with a chief complaint of severe headaches during the preceding two weeks. The headache had been in the right parietal, post orbital and frontal areas. Its severity had increased to the extent that he had been given morphine for relief. He consulted a dentist one week before this admission and several abscessed teeth were extracted. He also had been fitted for glasses.

The patient became quite stuporous on the night of November 7 and was brought promptly to the hospital. When seen by the admitting intern, he showed quiet respiration, dilated fixed pupils, profound stupor, a temperature of 102°, pulse of 80 and negative findings as regards the cardio-respiratory system. The abdomen was soft without any palpable masses or organs. No icterus was noted. The patient gradually became apneic and expired despite stimulants before a neurological examination could be accomplished.

Laboratory studies during this admission revealed a hematocrit of 37%, WBC of 12,250 with a normal differential distribution and a negative urinalysis.

### Discussion

DR. W. W. TAYLOR: The initial episode in this white male was characterized by chills, fever, jaundice and white to yellow stools with simultaneous increase in the coloration of the urine. Two possibilities immediately arise to explain the jaundice: (1) hepatitis or (2) obstruction of the main hepatic or common bile duct. To arrive at a more accurate diagnosis we must consider other details of the history and physical examination as well as laboratory findings. The absence of abdominal pain or gastro-

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intestinal symptoms is unusual. Presumably in hepatitis the distension of the liver and stretching of the liver capsule often produces pain or tenderness, while a stone in the common duct will produce pain in most cases. Carcinoma of the pancreas often results in pain due to the invasion of the celiac ganglion. Usually a lesion resulting in jaundice is accompanied by some anorexia, nausea and vomiting; it is interesting to note that such symptoms are absent in the case under consideration.

The initial fluctuation in color of the stools and urine suggest an intermittent obstruction of the bile ducts though lesions such as carcinoma of the pancreas may early be accompanied by an intermittent jaundice. Just before the patient's first admission to this hospital his jaundice was less severe and the chills and fever were pronounced. It is probable that the chills and fever are of the "Charcot" type and associated with distension of the biliary tree or gall bladder, perhaps with some added cholangitis. The one blood culture containing *Escherichia coli* may have been due to this cholangitis.

The icterus index was 150 (roughly equivalent to 15 mg. % of serum bilirubin) and the 1 minute serum bilirubin was 17.6 to 45 mg. per cent. The negative urinary urobilinogen suggests that very little bile pigment has entered the gut and favors an obstructive type of jaundice. The presence of some fecal urobilinogen is not incompatible with obstructive jaundice since the bile pigment may diffuse through the vessel walls and mucosa into the gut lumen. The positive test for bile in the urine is a reflection of the jaundice. The albuminuria can be explained by the damage to the renal tissue by the jaundice and perhaps by the fever.

There are several other laboratory tests of interest. The blood cholesterol is not elevated and even if it were it would not be of great value since it is elevated in both hepatocellular and obstructive jaundice although the cholesterol esters are generally reduced in hepatocellular jaundice. The cephalin flocculation is negative suggesting that there is no severe liver damage. The

slightly elevated alkaline phosphatase may occur in hepatocellular jaundice. The secondary damage to the liver in obstructive jaundice may give rise to bizarre laboratory findings which tend to obscure rather than to clarify the diagnosis. I would mention that in obstructive jaundice the elevation of serum bilirubin is not always paralleled by an increase in the serum alkaline phosphatase though frequently this is true. The negative dark-field examination for *Leptospira icterohemorrhagica* argues against but does not rule out Weil's disease. The findings in such tests as the cold agglutinins, heterophile antibodies, buffy coat, sedimentation rate do not help us in arriving at a diagnosis.

The serum amylase is definitely elevated. Its prolonged elevation is evidence against acute pancreatitis which has an elevated serum amylase for the short period of 12 to 48 hours after the onset of symptoms. The serum amylase changes in this case are compatible with an obstruction of the smaller or larger pancreatic ducts due to edema, tumor, etc.

The X-rays indicate that the liver is enlarged downward to the right iliac crest. Some enlargement was also found on physical examination. The flattening of the diaphragmatic leaves as a result of emphysema depress the liver somewhat giving rise to the false impression that the liver was larger than it actually was. The upper and lower GI series were negative. There is no evidence of Brown's sign—i.e., the compression of the first part of the duodenum by an enlarged common bile duct. There is no evidence of a widened duodenal silhouette.

The needle biopsy in February showed obstructive jaundice but the quantity of tissue was insufficient for accurate diagnosis. In early March, a laparotomy was performed and, in order to make a more interesting diagnostic problem, we are not permitted to know what was found or done at this laparotomy. But we do know that relief from the jaundice followed the surgical procedure and by the tenth post-operative day the serum bilirubin was greatly reduced. After discharge from the hospital the patient was followed in the Out-patient

Department for several months but then lapsed from observation until November 7 when he returned to the hospital with a headache of 2 weeks duration and with a history of recent extraction of teeth and recent need for glasses. This strongly suggests an intracranial lesion, probably a neoplasm, with increased intracranial pressure giving rise to the headache and to papilledema and visual disturbances. This possibility is enhanced by the apneic respiration, the fever, stupor and by the death of the patient soon after his final admission. There was no jaundice and no hepatomegaly. Apparently the changes in the liver, bile ducts, and pancreas had not progressed to the point where they of themselves caused death. The immediate cause of death is therefore probably due to the intracranial lesion.

If we are to associate the findings of the first and last admissions, the best possibility is a primary malignancy of the common bile duct, ampulla of Vater or pancreas with metastases to the brain. Duodenal aspirations may have helped us differentiate the afore mentioned diagnoses. The jaundice of the initial admission was of the obstructive type with pruritis, white stools and negative urinary urobilinogen. Distant metastases from such carcinomas are rare, the metastases generally being to liver, lungs and bones. We cannot exclude a stone in the common bile duct and later a terminal cerebrovascular accident. Pain or abdominal discomfort is absent in about 5% of the cases with common duct stone but pain may also be absent in carcinomas of this general area. One might also have a lymphoma about the head of the pancreas which would obstruct the common bile duct. Metastases from gastric carcinomas and hypernephroses to the head of the pancreas also are a possibility. The final episode might be a "liver death" with stupor, dilated pupils and elevated temperature even though it is rare to have a liver death without jaundice.

Dr. W. W. Taylor's diagnoses:

(1) Carcinoma of the head of the pancreas or ampulla of Vater

(2) Metastases to the Brain

Pathologic Diagnoses:

(1) Carcinoma of the head of pancreas with metastases to regional nodes and brain

(2) Obstructive jaundice relieved by cholecystojejunostomy

(3) Cirrhosis, mild

(4) Pulmonary emphysema and focal areas of fibrosis

DR. RUSSELL JONES: We can now disclose that in March 1950, eight months before the patient's death, the surgeons found a 4 cm. tumor mass in the region of the head of the pancreas with firm enlarged lymph nodes about this mass and about the aorta and celiac axis. The gall bladder was distended and the liver had a greenish black color. A cholecystojejunostomy was performed.

The reconstruction of the case has been given so accurately by the discussant that it scarcely needs elaboration. This case does have several interesting aspects: (1) the early obstructive jaundice and later cirrhosis, (2) the metastases to the brain without metastases to the liver or lungs, and (3) the altered course of carcinoma of the pancreas by the surgical intervention and relief of biliary tract obstruction.

On the patient's first admission to the hospital the liver was considerably enlarged. The needle biopsy revealed dilated bile canaliculi but since the portion of tissue was so minute one cannot definitely exclude the presence of scarring in the hepatic tissue. At the time of the surgical procedure in March, the liver was greenish black in color but no mention was made of any cirrhosis. After the establishment of the cholecystojejunostomy the liver diminished in size along with the relief from the jaundice. At the time of autopsy in November, the liver weighed 1,900 grams and was of the usual color but revealed a mild fine nodularity. Microscopically the liver showed distortion of the lobular architecture with moderate increase in the periportal connective tissue. There was no evidence of cholangitis at this time and there was only slight increase in the smaller bile ducts. There is some evidence, therefore, to indicate that the fibrosis of the liver might have followed the period of obstructive jaundice. One cannot exclude the influence of possible cholangitis at that time



nor can one completely exclude the role nutritional deficiencies afterwards although we should note that the patient gained some weight after the cholecystojejunostomy and remained well-nourished until his death.

The absence of metastases to the liver is an exceptional feature in this case, almost as exceptional as the absence of pain. Perhaps both of these features are related for in the microscopic sections the tumor has not extended along the perineural lymphatics in the manner of many of these pancreatic carcinomas and has not extended into the blood vessels in the tissue sections which have been examined. The carcinoma did extend to many of the regional nodes, greatly enlarging them. The metastases to the brain may have been either resulted from tumor emboli via the paravertebral

venous plexus or through the thoracic ducts to the subclavian vein then through the pulmonary circulation to the brain. Just why the brain (other than for the regional nodes) should be the only site of metastasis, and of multiple ones at that, is almost as obscure as the etiology of the carcinoma of the pancreas.

While the cholecystojejunostomy represents palliative surgery it certainly gave this patient an additional 8 months of life—8 months, we hope, of inestimable value to him; at the least he had no apparent distress until the last few weeks and for those who may view this case impersonally, we have learned that this palliative surgical procedure has greatly altered the usual picture of carcinoma of the pancreas with obstruction of the common duct.

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**Obesity in Diabetes: A Study of Therapy with Anorexigenic Drugs. Osserman, K. E., and Dolger, H., *Ann. Int. Med.*, 34:72, 1951.**

The management of obesity in diabetes is difficult. In spite of more than usual the knowledge of calories and the importance of diet, the obese diabetic is notoriously difficult to reduce. Most need some supportive treatment in addition to frequent consultation with and reassurance by their physician.

By using anorexigenic drugs in the treatment of 55 obese diabetics, these investigators evaluated the effectiveness of Benzedrine and Dexedrene in these patients. The patients ranged in age from 20 to 70. Thirty-one required insulin therapy.

During the first 18 months of the study, most patients received 10 mgm. of Dexedrine three times a day while on a 1,000 calorie diet. Thirty-six patients (65%) achieved significant weight loss. The beneficial effect of this weight loss on carbohydrate tolerance is indicated by the fact that 84% of the patients requiring insulin were able to discontinue or to reduce the dosage. In those not

requiring insulin, 32% noted improvement of tolerance, as shown by monthly glucose tolerance tests. Inability to adhere to a restricted diet in spite of Dexedrine occurred in 35% of the patients, with resultant failure to lose weight.

After 18 months, the drug was withdrawn, and the patients continued on diet alone. After one year of this regimen, 19% still lost a little weight, 41% had regained a little weight, and 40% had regained from 11 to 26 pounds. This condition was accompanied by increase of insulin dosage, or resumption of insulin injections.

Few patients exhibited drug reactions, which are well-known side effects of these drugs. No effect on angina pectoris, hypertension, or the course of diabetes was observed.

It is evident, as has often been pointed out before, that caloric restriction is the basis of the treatment of obesity, and that the patient's cooperation is vital. Any aid to cooperation, such as Dexedrine, is of limited value, and should not be depended upon for permanent satisfactory weight reduction.

(Abstracted for the Tennessee Diabetes Association by Jean M. Hawkes, M.D., Memphis, Tenn.)



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# President's Message

## ATOMIC WARFARE



DR. MONGER

This is a review of a Regional Meeting of the Council on Civilian Defense which I attended in Chicago and is taken from an address by George M. Lyon, M.D.. This article deals pri-

marily with that part pertaining to Estimating Casualties in Atomic Attack.

In attempting to estimate the number of casualties which might occur in an individual city many things must be taken into consideration. Important among these are (a) how the bomb is detonated, high in the air; on or near the ground; or under water, (b) the population density of the area most directly damaged by the bomb, (c) the geographical and topographical characteristics of the city bombed, (d) the prevailing construction of the buildings and their relative resistance to fire and to blast damage, (e) the season of the year, (f) whether in the daytime or at night, (g) whether an alarm was or was not given in time, (h) whether protective shelter was available and utilized.

The worst situation, from the standpoint of large number of casualties, would occur if, in the daytime and without warning, a bomb were detonated in the air over a densely populated portion of a city at such an altitude as to produce maximum physical destruction. This was what occurred in Japan when the bombs exploded at a height of about 2,000 feet.

If under comparable conditions, the bomb was detonated at night, the total number of casualties might not exceed more than half that which would occur in a daytime attack. This would depend mainly upon

the number of people in the various damage areas.

In a high air burst, it is likely that the mechanical injuries would equal, if indeed not outnumber the burns, and it is probable that the proportion of mechanical injuries to burns would be pretty much the same under most of the varying conditions.

In a surface or low air burst, there would probably be a lesser number of total casualties with mechanical injuries predominating and there might be relatively more radiation injuries.

In an under the water burst, there would be a few burns and perhaps relatively more mechanical injuries. The total number of casualties, however, would probably be lower than in an air-burst or ground-burst.

With so many unpredictable factors and combination of factors, each one having such an important bearing on the number of casualties that might be produced by a single bomb, it is impossible to make a single estimate which would be universally applicable to all cities and which would suitably indicate what the medical situation following an atomic attack might be.

Burns will probably be the most serious injuries, and we should organize blood banks wherever possible. In estimating the whole blood requirements, say for example if 80,000 casualties survive the first day then the weekly requirements will be roughly 80,000 pints the first week mainly for burn cases, 80,000 pints the second week for decreased needs for burn cases offset by increased needs for radiation sickness cases, and 80,000 pints the third week mainly for radiation sickness cases.

*Ralph H. Monger M.D.*



# THE JOURNAL

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MARCH, 1951

## EDITORIAL

### THE 1951 SCIENTIFIC PROGRAM OF THE TENNESSEE STATE MEDICAL ASSOCIATION

Elsewhere in this issue the members may learn what is offered on the scientific program for the meeting on April 10 and 11 in Nashville.

The Committee on Scientific Work has given much time and thought to this program. Since the program of a state medical society should have a wide appeal, the Committee used a new departure in selecting subjects for presentation. The Committee agreed upon fifteen subjects which might appeal to the general practitioner. This list was sent to the secretaries of the non-urban county medical societies. They were asked, with their membership, to indicate ten subjects which they wished discussed. The six subjects receiving the most votes were then accepted for discussion on the program. The Committee then agreed upon the essayists to be invited to present the papers. Additional papers were

selected from among those offered by members of the Association.

Chairman of Committee  
on Scientific Work

★

### VDRL TEST FOR SYPHILIS

The members of the profession have been notified that the Tennessee Department of Public Health will replace the time-honored Kahn test with the Venereal Disease Research Laboratory test for syphilis. This decision has been reached after a two-year trial of this test in comparison with the Kahn and Wassermann tests.

A decade ago Pangborn<sup>1</sup> described the isolation and purification of a new phospholipid from beef heart which she found to be active in the serologic tests for syphilis. This serologist had continued the search which had been going on since 1910 in an effort to isolate the substance from beef heart which reacts with the serum of syphilitic patients. She isolated a new non-nitrogenous phospholipid from the beef heart, which she called "cardiolipin." This with the addition of lecithin and cholesterol was found to be active in complement fixation in syphilitic sera. No substance similar to cardiolipin had ever been isolated before from animal tissues, though phospholipids yielding carbohydrates upon hydrolysis had been isolated from various acid-fast bacilli. (Curiously these bacillary phospholipids are serologically active as is cardiolipin.) Cardiolipin then seems to be the specifically active portion of any beef heart antigen used in the blood tests for syphilis.

Pangborn having found that a combination of cardiolipin, lecithin and cholesterol were good components in the complement fixation tests for syphilis, Harris and his associates in the Venereal Disease Research Laboratory initiated a study to utilize them in flocculation tests. They were interested in developing a technic with this new beef heart antigen which could be so standardized that results might be consistently reproduced, which would be easy to perform and which would meet the essential attributes of any serologic test,—those of *sensitivity* (to find syphilis if present) and of

*specificity* (a reduction of *falsely* positive tests to a minimum).

The first reports from the Venereal Disease Research Laboratory dealt with a slide (microflocculation) test<sup>2</sup>. These studies showed, in a study of 1,046 specimens of blood from known treated or untreated syphilitic persons, a satisfactory degree of sensitivity and specificity in comparison with six commonly used flocculation tests and the Kolmer complement fixation test. In the hands of technicians in five other laboratories in the 1947 National Serologic Evaluation Survey, the VDRL slide test gave results fairly comparable to those of the parent laboratory.

The antigen used in the microflocculation test was then applied to the macroflocculation technic,<sup>3</sup> the test adopted now by the Tennessee Department of Public Health. (This may be used also as a quantitative test.) As compared with the slide test it showed agreement in results in 98.59 per cent of 5,016 serums tested.

Those in charge of the Tennessee Department of Public Health Laboratories have satisfied themselves that in their hands the VDRL antigens, both in the flocculation and complement fixation tests, have a higher sensitivity, though still maintaining specificity, than the Kahn Standard and usual Kolmer tests. (These comparisons were indicated in the letter sent the physicians of the State.)

The cardiolipin-lecithin-cholesterol combination has been used in varying proportions as the antigen in the Hinton, Kline and other tests. From the literature it does seem that antigens of this nature are more sensitive and find positive bloods especially of lower titer. The specificity of the antigen has been questioned by a few authors.\*

Since a biologic test such as those used in the diagnosis of syphilis when quanti-

tated, can only be expressed in terms of dilution, it is unfortunate that the artificial means of reporting unitage came into vogue. This led to much misinterpretation in the minds of physicians unfamiliar with the actual methods of arriving at the score. Therefore the Tennessee Department of Public Health is to be complimented for following suggestions made by some serologists of reporting results in terms of dilution. We speak of agglutination tests for *Eberthella typhosa*, or *Brucella abortus* or *Pasteurella tularensis* as being positive in a 1:320 or 1:1280 dilutions, etc. Why use unitage in the Kahn or similar tests! From now on if the quantitative VDRL is positive in a 1:1 dilution it will be reported as 1 dil (4 Kahn units); if positive through the 1:80 dilution it will be 80 dils (320 Kahn units).

It should be added that the introduction of this new test is merely a more sensitive variation of the same old antigen (beef heart) used for several decades. The same old problems confront the physician. Titer fluctuations of no significance still occur. Last but not least, this test does not provide the *absolute* diagnosis of syphilis. It must still be interpreted, whether positive or negative, in light of the doctor's history and physical examination. False positive tests due to circumstances other than syphilis still must be evaluated.

R. H. K.

1. Pangborn, M. C., A New Serologically Active Phospholipid from Beef Heart, *Proc. Soc. Exper. Biol. & Med.*, 48: 484, 1941; Isolation and Purification of a Serologically Active Phospholipid from Beef Heart, *J. Biol. Chem.*, 143: 247, 1942.

2. Harris, A., Rosenberg, A. A., and Riedel, L. M.: A Microflocculation Test for Syphilis Using Cardiolipin Antigen. A Preliminary Report, *J. Ven. Dis. Inf.*, 27: 169, 1946. The VDRL Slide Flocculation Test for Syphilis, II. A Supplementary Report, *ibid*, 29: 72, 1948.

3. Harris, A., Rosenberg, A. A., and Del Vecchio, E. R.: A Macroflocculation Test for Syphilis Using Cardiolipin-lecithin Antigen. Preliminary Report, *J. Ven. Dis. Inf.*, 29: 313, 1948.



## THE MEDICAL SCHOOL AND THE GOVERNMENT

The application of new technics in medicine has made the teaching of medical students increasingly more complex and

\*Your editor cooperating with the serology laboratory of Vanderbilt University Hospital has subjected the sera of known and suspected syphilitic patients in the Medical Clinic to the VDRL, Kahn Standard, quantitative Kahn and Kolmer tests for the past 5 months. Though no statistical study has been made, it is his impression that the VDRL test is more sensitive than the Kahn test.



costly. As a result medical schools have found themselves handicapped in providing such education in the face of a shrinking income on endowments and in the face of the rising costs of inflation. Tuition covers only about 25 per cent of the doctor's education.\* Though the great endowments of the Rockefellers, the Dukes and others may seem a thing of the past, private endowment has continued though on a lesser scale; research funds have been supplied by a liberal handed policy of the major pharmaceutical houses and by grants-in-aid from governmental agencies.

A year or more ago a group of public minded men in business and medical education organized a "voluntary agency to support medical education in the United States." (The AMA has representatives in this group.) The objectives of this organization are stated to be: to publicize to the public the needs of the medical schools, to raise money from private sources and to distribute them in an equitable manner to the schools.

Since developments in private philanthropy were moving slowly, and the pressure for governmental subsidy for medical schools was increasing, the Board of Trustees of the American Medical Association made a wise and timely decision in December 1950. They proposed the establishment of the American Medical Education Foundation. The House of Delegates approved this unanimously and voted an appropriation of \$500,000 as a beginning. Obviously, increasing funds are needed for a project of the magnitude of aiding medical schools. An appeal is made to physicians to contribute on the basis that their tuition as a medical student only partially paid for their medical education. No doubt contributions will be obtained from philanthropic wealthy persons and from industry as well.

Critics of the medical profession were quick to point out that the AMA had to do this to keep "face" since it is critical of governmental subsidy. For the record, it is only fair to point out the interest the AMA has had in medical education for many dec-

ades. In 1904 the Council on Medical Education of the AMA began a study to reform medical education, and backed the study by Abraham Flexner under the auspices of the Carnegie Foundation. The AMA then, by rating medical schools, forced the closure of a large number of the weaker private schools. The AMA Council on Medical Education and Hospitals with an annual budget running into six figures shares responsibility with the Association of American Medical Colleges for the maintenance of standards both in medical schools, and in hospitals for post-graduate training.

Though the deans of practically all medical schools will accept government subsidies if there is no other alternative, it may be safely said that they would prefer funds from sources less likely to "attach strings." (Medical school administrators feel Federal funds should be utilized only as an emergency measure.) The lever of public monies can always be used to influence curriculum, admissions to medical school, and the size of the school, directly or indirectly. Furthermore as Dr. James J. Waring<sup>1</sup> said several years ago, "if Uncle Sam takes over the financing of research and the training of personnel, *he* will decide what affects national security and is therefore a military secret and not to be published.—Two other dangers are resident in Federal aid to scientific research in the University, the one relates to the drying up of private sources of support as the rich uncle takes over, and the other relates to the possible domination and direction of research by the government, the latter danger increasing as other sources of support withdraw. To the extent that the university becomes dependent upon direct Federal aid, to that extent is education in danger of being taken over by government."

In addition to this hampering influence on research and advancement of science, one can only foresee deteriorating effects in the training of medical students. To the readers of these pages it is not necessary to point out that adequate medical instruction is a matter other than merely more

\*In 1948, an estimate of the four-year cost of training one typical medical student was \$13,356.

<sup>1</sup>Waring, J. J., Science, Government and the University, Nu Sigma Nu Bull., p. 15, 1947.

classrooms and chairs. In addition to extended laboratory space and equipment, it also means an adequate number of hospital beds to provide the clinical material for larger classes. Finally, but more important, is the matter of providing the teaching staff, in a field where individual and group instruction are so fundamental. In these days of shortages in scientifically trained young men this is a hurdle which cannot be cleared. The instructor who has to check off three students, instead of two, at the bedside or in the clinic has deprived his students by thirty-three per cent in teaching. Much of training in clinical medicine lies in seeing a thing well done! If a faculty and, to some extent, a resident staff cannot be increased commensurate with an increased medical student body, the student's training will suffer by observing hurried work.

Every bill on medical education which has been introduced in Congress has contained bait to catch deans in the meshes of expansion of their medical schools. Witness the bill S.337 recently endorsed by the Senate Committee on Labor and Public Welfare. It provides that medical schools would get \$500.00 annually for each student and *\$1,000 for each student in excess of average enrollment.*

As a teacher in medicine, your editor wishes the American Medical Education Foundation well and hopes that he may not see the time when a bureaucrat will decide how many, and who will be admitted to medical school, nor what subjects are to be stressed, nor which piece of medical research is to be carried out. If most physicians would heed the AMA appeal for a \$100.00 gift annually to the Foundation, to pay for that part of his education which was a gift from the state or an endowment, freedom could be bought for deans and medical schools. *Here is an opportunity for the doctors of the Volunteer State.*

R. H. K.

NOTE.—After this editorial was written the news arrived that the California Medical Association had contributed \$100,000 to the American Education Foundation, the first state association to donate from its funds.

## THE NEW LOOK IN MEDICINE

The new officers of most local medical societies were installed last month. These busy doctors shouldered more responsibility than their predecessors in office ever did. Here's why.

In former years, the primary responsibility and often the exclusive one, of organized medicine—local, state or national—was the advancement of the art and science of medicine. This was, and is, a noble objective. The dedication of the doctor as an individual and of men of medicine collectively through their medical organizations to scientific medicine has brought about the finest system of medical care on earth today.

But, scientific excellence is not enough. The very achieving of technical excellence in medicine has brought new responsibilities to the profession. These responsibilities lay in the fields of medical economics, medico-sociology and medical statesmanship. These modern aspects of medical practice are as much a part of the delivery of medical care as is the diagnosis and treatment of a specific disease.

Since there has been an unquestioned public acceptance of the scientific and technical excellence of modern medicine, the medical profession has new and ever-expanding duties to the public. Among these duties are (1) to see that good medical care is available to all the people, and (2) to see that the cost of such care is not beyond the means of the public.

These two twentieth-century duties constitute a primary challenge to medicine. These responsibilities are being met. Efforts toward the solution of the problems of medical economics, medical sociology and medical politics account for the NEW LOOK of medical society programming, activities and planning.

Medical societies—national, state and local—have exchanged their cloak of aloofness for a new wardrobe of civic interest, political alertness, social consciousness and concern about the economic shock of illness.

Let it be remembered that the doctor is still the doctor,—still the physician in time of illness and the counselor in time of health,



—still the one who confidently accepts the responsibility for his patient, *but*, he is much more!

The new doctor, busy as he is and though scarcely trained in the weighty matters of economics, sociology and politics, is alert to his public responsibility in these relatively new fields of medical society activity.

This new society, therefore, is a far cry from the cold, scientific society of yesteryears. It is not forgetting its primary responsibility—scientific advancement—but look at the embellishments!

There are the shoes of public service—speakers, panel members, radio addresses, emergency call services, participation in local health councils, counselors in community health and on and on.

There is the coat of concern about the costs of illness, prepaid insurance, adjustment of bills to individual financial ability to pay, care of the indigent, care to all, regardless of the ability to pay.

There is the ring of sincerity, too. This ring is made up of such jewels as grievance committees, invitations for constructive criticism and stiff discipline for the few whose conduct reflects upon the profession.

Finally, there's a new spirit under those new clothes, too. Although the person under the clothes is the same devoted doctor, there's new blood in his veins, a new confident glint in his eye, and a new alertness and dedication to a fuller role in the service to humanity.

Isn't the new look in medicine handsome?

V. O. F.



#### A MILESTONE IN PUBLIC SERVICE

The following Resolution passed the House and Senate of the General Assembly of Tennessee unanimously on February 28.

The Resolution is a significant milestone in this Association's sincere efforts to make medical care of the highest quality available to *all* the people, regardless of ability to pay. One of the noblest tenets in the profession's code of ethics is exemplified in this Resolution—that "the poverty of the patient commands the gratuitous services of a physician."

The Resolution was approved by the

Board of Trustees, the Legislative Committee and the Public Service Committee of the Association. Its passage was sparked by the timely interest and effective contacts on the part of Dr. L. W. Edwards, Chairman of the Public Service Committee.

The Resolution, because of its sincerity and public interest, evoked the most kindly tributes to physicians by members of both houses who spoke in favor of the Resolution.

V. O. F.

#### House Joint Resolution No. 6 by Beasley, Foutch, Johnson (of Coffee)

WHEREAS, A study should be made of plans to provide for hospitalization, medical care and treatment for indigent sick persons of Tennessee who are financially unable to pay the cost of hospital care and treatment; and

WHEREAS, The doctors of medicine of Tennessee as represented by the Board of Trustees of the Tennessee State Medical Association have, in conference with the Governor, stated to the Governor of Tennessee that there is an acute need for the State of Tennessee to assume some responsibility for the cost of hospitalization of such indigent patients; and

WHEREAS, The doctors of medicine have agreed with the Governor that they, the doctors of medicine, should, without cost to the State of Tennessee, provide professional medical services to such patients; and

WHEREAS, Such an anticipated program is known to be complicated by many factors other than the necessary funds to pay the cost of operation.

NOW THEREFORE, BE IT RESOLVED BY THE SENATE OF THE GENERAL ASSEMBLY OF THE STATE OF TENNESSEE, THE HOUSE OF REPRESENTATIVES CONCURRING THEREIN, That there is hereby created a Commission to be known as the Study Commission for Indigent Hospitalization, hereafter referred to as the Commission, and said Commission is charged with the duty of investigating, studying and making a survey as to the following matters:

A. The extent of State, County and Mu-

nicipal aid to general hospitals under present state and local laws.

B. The general background of the financial problems now facing voluntary public and private hospitals.

C. The responsibility, if any, which the State of Tennessee, the counties or cities or other public authorities might have for meeting hospital deficits.

D. A plan or plans to provide for hospitalization and medical care and treatment for indigent and sick persons financially unable to provide the hospital care, the methods and procedures by which such hospitalization and attention can be provided, and the possible cost of such plan or plans, and whether funds may be provided for said purpose, and if so, by whom;

E. Any other related matters reflecting upon the feasibility or possibility of providing hospitalization for indigent sick persons in Tennessee.

SECTION 2. BE IT FURTHER RESOLVED, That this Commission, as created herein, shall make a report of its findings to the Governor of the State of Tennessee not later than October 1st preceding the next regular meeting of the General Assembly of the State of Tennessee and that such findings, including the conclusions of the Commission as reported to the Governor, shall be submitted by the Governor to the General Assembly at its next regular meeting.

SECTION 3. BE IT FURTHER RESOLVED, That the Commission herein created shall be appointed by the Governor within sixty (60) days after the passage of this Resolution, and that the membership of this Commission shall be composed of the following: the Commissioner of Public Health, Ex-Officio, as Chairman; the Commissioner of Public Welfare, Ex-Officio, as a member; not less than three physicians who hold unlimited license to practice medicine in Tennessee; three hospital administrators, each of whom shall be actively engaged in the administration of a hospital of not less than one hundred beds; and such other members as the Governor, in his wisdom, may decide to add to the list. The Commission shall elect a Secretary who shall

keep all records and proceedings of all meetings. A majority of the appointed members shall constitute a quorum for the transaction of all business.

SECTION 4. BE IT FURTHER RESOLVED, That members of said Commission shall be paid all necessary travel expenses while engaged in work of the Commission and that there be included in the Miscellaneous Appropriation Bill the sum of \$10,000.00 and any part or all of which may be used to pay the necessary personnel and cost of the survey, expenses, and work of said Commission created under this Resolution. When such funds have been appropriated, the State Treasurer is hereby directed to disburse said amount when statements for these expenses are presented by the Chairman of the Commission; such funds to be handled in accordance with state law through the fiscal section of the State Department of Public Health, but not a part of the appropriation to the Department of Public Health.

ADOPTED: February 28, 1951.

MCALLEN FOUTCH  
*Speaker of the House of  
Representatives*  
PETE HAYNES  
*Speaker of the Senate*

APPROVED:

GORDON BROWNING  
*Governor*

## WHAT'S NEW IN MEDICINE

### Treatment of Euthyroid Cardiac Patients Having Intractable Angina Pectoris and Congestive Failure with Radioactive Iodine

Continuing the studies of past years, surgically induced hypothyroidism as a therapeutic management of severe angina pectoris and congestive failure. Freedburg, Blumgart, Kirland and Chamovitz (J. Clin. Endocrinology 10: 1270, 1950) gave radioactive I<sup>131</sup> to 23 persons having normally functioning thyroid glands for the production of hypothyroidism. All 23 patients suffered from intractable angina pectoris



or congestive failure. No radiation sickness nor toxic effects were noted following the oral administration of the radioactive isotope.

In 11 of the 17 patients having severe cardiac pain, the angina was much less or abolished. The accompanying congestive failure in some of these patients was improved. In the remaining 6 of the 17 patients the angina was relieved while the myxedema was present but recurred when thyroid substance was given. Six patients were incapacitated primarily by congestive failure. Four of these six showed worthwhile improvement, it being striking in three.

Although prolonged study is necessary to evaluate such treatment, the authors feel many months of comfortable existence have been added to cardiac patients who were refractory to usual medical methods.

★

### Results of High Dosage of Radioactive Iodine

Gorbman (J. Clin. Endocrinol., 10: 1177, 1950) reports on the sequelae in mice, several years after giving radiotoxic doses of iodine ( $I^{131}$ ). The dosage was as little as 4 times and as great as 20 times that given to human beings in the treatment of hyperthyroidism. Some of these sequelae were peculiar to mice, but others might occur in treatment of human patients.

The unfavorable effects were stunting of growth, failure of regeneration and functional activity of the thyroid gland in mice surviving the radioactive exposure, injury to the parathyroid glands, tumors of the trachea, injury to the recurrent nerve, ovarian sterility and fatal adenohypophyseal tumors.

The author suggests that radioactive iodine in therapeutic doses for hyperthyroidism be utilized only in aged persons or in those in whom operation is contraindicated. He feels it should not be used in non-fatal disease.

★

### Alteration of Inflammatory Response by Cortisone

The effect on the early inflammatory re-

action was studied by Michael and Whorton (Annual Meeting, Southern Society for Clinical Research, Jan. 27, 1951). The skin of two groups of rabbits was treated by croton oil. One group received cortisone and one provided controls. In controls there appeared early, intense erythema progressing to necrosis in 48 hours; cortisone treated rabbits revealed slight erythema without necrosis. Microscopically, the inflammatory reaction was inhibited in the animals receiving cortisone.

Previously, it had been shown that cortisone inhibits the formation of granulation tissue, a possible explanation for the spread of bacterial infections under cortisone.

★

### Resistance of Normal Thyroid to Propyl Thiouracil

Jungck, Brown, Sutherland and Jackson (Annual meeting, Southern Society for Clinical Research, Jan. 27, 1951) tried to induce hypothyroidism and menstrual irregularities in 8 normally menstruating women. 6-n-propyl thiouracil was given orally increasing doses of 250 mgm. to 3,000 mgm. daily over an eight-month period. The larger dose was given in the last eight week period. Studies involved biweekly blood counts, weekly BMR determinations and endometrial biopsies.

During the period of observation only 3 anovulatory cycles occurred, considered as a normal variation. No menstrual irregularities appeared. No real changes occurred in the BMR; there was no hypothyroidism nor enlargement of the thyroid.

★

### Suppression of Tissue Reactivity, Cortisone and Aminopterin

It is pointed out by Gubner (Am. J. M. Sc., 221: 169, 1951) that the reparative processes of inflammation may leave disturbed function through scar, fibrosis and the like. ACTH and Cortisone suppress connective tissue reactivity and proliferation.

Aminopterin (anti-folic acid substance) suppresses exudative and proliferative changes due to inflammation in experi-

mental animals. Cortisone is anti-anabolic with whole protein units, whereas aminopter in inhibits the effects of folic acid in the production of purines, etc., and the utilization of amino acids.

Gubner, August and Ginsberg (Am. J. M. Sc., 221: 176, 1951) report on the effect of aminopter in 8 cases of rheumatoid arthritis. Definite relief from symptoms occurred in 7 cases, exacerbations occurring some weeks after cessation of treatment. Fever and leucocytosis decreased but the sedimentation rate remained elevated. No change occurred in eosinophil counts which would indicate an effect through the adrenal glands. The effects are not limited to mesenchymal tissue since remission could be produced in psoriasis.

## DEATHS

**Dr. Walter Scott Moore**, 67, the oldest practicing physician in Etowah, died February 17, 1951. Dr. Moore suffered a stroke several days preceding his death.

★

**Dr. A. D. Cole**, 68, died at his home in Loretto on Tuesday, February 6, 1951. His death was attributed to a heart attack.

★

**Dr. Claude Melnotte Banks**, 83, a retired Robertson County physician, died Tuesday night, February 6, at the Robertson County Hospital in Springfield. Dr. Banks was one of the founders of the Robertson County Medical Association of which he was a past president.

★

**Dr. Eugene Lindsay Bishop**, 64, health and safety director for the Tennessee Valley Authority and Tennessee Health Commissioner for 11 years, died February 27 at Vanderbilt Hospital following a brief illness. Dr. Bishop, who had won national acclaim for his work in public health and preventive medicine, had been in Vanderbilt Hospital since Monday morning, February 26th. However, he had been in ill health since the first of the year.

## PROGRAMS AND NEWS OF MEDICAL SOCIETIES

### Program of the Tennessee State Medical Association

Meeting in Nashville, Tennessee

Tuesday, April 10

#### 9:40-10:10 Roentgen Diagnosis of Polyps of the Colon

Fred O. Coe, M.D., Washington, D. C.

#### 10:10-10:35 The Painful Shoulder

Hugh Smith, M.D., Memphis, Tenn.

To Discuss: Harrison C. Bourkard, Jr., Knoxville, Tenn.

Exhibits

#### 11:00-11:30 Cancer in the Child

Angus McBryde, M.D., Durham, N. C.

#### 11:30-12:00 Benign Fibrous Solitary Mesotheliomas of the Pleura and Peritoneum

Arthur P. Stout, M.D., New York City

\* \* \*

#### 1:30- 3:10 Symposium—ACTH and Cortisone

University of Tennessee College of Medicine

##### Introduction

Charles J. Deere, M.D.

##### In Pediatrics

James N. Etteldorf, M.D.

##### In Arthritis

Fred Tatum, M.D.

##### In Collagen Diseases

Charles J. Deere, M.D.

##### In Miscellaneous Medical Conditions

Hall S. Tacket, M.D.

##### In Surgical Conditions

Russell H. Patterson, M.D.

Exhibits

#### 3:40- 4:10 Problems in the Treatment of Common Contagious Diseases

Robert Lawson, M.D., Winston-Salem, N. C.



4:10- 4:35 **The Adenomatous or Nodular Goiter**

G. Turner Howard, M.D.,  
Knoxville, Tenn.

To Discuss: Ralph R.  
Braund, Memphis, Tenn.

Wednesday, April 11

9:00- 9:25 **Acute Obstruction of the Small Bowel—A Review of 81 Cases**

Byron O. Garner, M.D., Union  
City, Tenn.

Mark L. Saylor, M.D.

Joseph E. Hamilton, M.D.

To Discuss: Dr. Malcolm T.  
Tipton, Union City

9:25- 9:50 **The Importance of Hoarseness**

William G. Kennon, Jr., M.D.,  
Nashville, Tennessee

To Discuss: N. S. Shofner,  
M.D., Nashville, Tenn.

Exhibits

10:20-12:00 **Symposium—Heart Disease**

Vanderbilt University School  
of Medicine

**Classification and Cause**

Laurence Grossman, M.D.

**The Cardiac Arrhythmias**

David Strayhorn, M.D.

**Modern Concepts in Diagnosis and Treatment of Congestive Heart Failure**

Samuel S. Riven, M.D.

**Cardiac Pain and Its Differential Diagnosis**

J. Allen Kennedy, M.D.

**Laboratory Aids to Diagnosis in Heart Disease**

Thomas M. Blake, M.D.

\* \* \*

1:30- 1:55 **Endocrine Treatment of the Female and Male Climacteric**

Orin L. Davidson, Jr., M.D.,  
Memphis, Tenn.

To Discuss: Hubert K. Tur-  
ley, Jr., M.D., Memphis,  
Tenn.

1:55- 2:20 **Hand Injuries**

S. Benjamin Fowler, M.D.,  
Nashville, Tenn.

To Discuss: Robert Brash-  
ear, M.D., Knoxville, Tenn.

2:20- 2:45 **Laboratory Aids for the General Practitioner**

Jack Adams, M.D., Chattanooga,  
Tenn.

To Discuss: James B. Hav-  
ron, South Pittsburg, Tenn.

Exhibits

3:15- 3:40 **Hepatitis—Diagnosis and Treatment**

Lamb Myhr, Jackson, Tenn.

To Discuss: Robert Finks,  
M.D., Nashville, Tenn.

3:40- 4:05 **Infectious Mononucleosis or a New Entity**

Robert C. Kimbrough, Jr.,  
M.D., Knoxville, Tenn.

4:05- 4:30 **Condemning "Poison Ivy" Injections**

Robert N. Buchanan, Jr.,  
M.D., Nashville, Tenn.

To Discuss: Frank G. With-  
erspoon, M.D., Nashville,  
Tenn.

★

**Program of the Tennessee Radiological Society**

Monday, April 9, 1951

Noel Hotel, Nashville

9:00 a.m. Acute or Massive Upper Gastro-  
intestinal Hemorrhage, with  
Particular Reference to Poste-  
rior Wall Duodenal Ulcers—Its  
Diagnosis and Treatment  
"The Roentgen Diagnosis of  
Polyps of the Colon"  
Fred O. Coe, M.D., Garfield  
Hospital, Washington, D. C.  
(This paper will serve as a basis  
for a symposium of short pa-  
pers and case reports by our  
members)

12:00 m. LUNCHEON

1:00 p.m. "Pulmonary Infarction"

Fred O. Coe, M.D.

1:45 p.m. Golf Tournament at Richland  
Country Club

WALTER W. ROBINSON, M.D.,  
President, Memphis

WALTER D. HANKINS, M.D.,  
Vice-President, Johnson City  
J. MARSH FRERE, M.D., Secretary-Treasurer, Chattanooga



### Program of the Annual Meeting of the Tennessee Academy of Ophthalmology and Otolaryngology

Monday, April 9, 1951

Hermitage Hotel, Nashville

8:30 a.m. Registration

9:00 a.m. "Tuberculosis Adenoiditis"

J. Thomas Bryan, M.D.,  
Nashville

Discussers:

W. G. Kennon, M.D., Nashville

Clarence Woodcock, M.D.,  
Veteran's Hospital, Nashville

9:45 a.m. "Clinical Results with Cortisone  
in Ophthalmology"

Charles King, M.D.

Philip Lewis, M.D.

Richard Miller, M.D.

Discussers:

Fowler Hollabaugh, M.D.,  
Nashville

I. L. Arnold, M.D., Chattanooga

10:30 a.m. "Treatment of Facial Fractures  
by Wiring"

Joseph A. Buchignani, M.D.,  
Memphis

Discussers:

Likely Simpson, M.D., Memphis

McCarthy DeMere, M.D.,  
Memphis

11:45 a.m. "Surgery in Acute Glaucoma:  
Description of a New Technique of Iridectomy"

E. Malcolm Campbell, M.D.,  
Johnson City

Discussers:

Henry Carroll Smith, M.D.,  
Nashville

R. O. Rychener, M.D., Memphis

LUNCHEON—Hermitage Hotel

Nashville Society, Host

1:30 p.m. "Otitis Media with Effusion"

J. Mac Sams, M.D., Johnson City

Discussers:

Joseph Buchignani, M.D.,  
Memphis

Herbert Duncan, M.D., Nashville

2:15 p.m. Movie on Results of Integrated  
Implants

John Montgomery, M.D.,  
Knoxville

Discussers:

Robert Leach, M.D., Knoxville

Leon Hoskins, M.D., Knoxville

3:00 p.m. "Ocular Changes in Orbital Cellulitis"

Olan E. Ballou, M.D., Knoxville

Discussers:

Leon Hoskins, M.D., Knoxville

Sam Sanders, M.D., Memphis  
*Business Session*

6:00 p.m. Cocktail Party—Hermitage Hotel—Nashville Society, Host  
Dinner, Dutch, to follow



### Program of the Tennessee Pathological Society

Monday, April 9, 1951

Room 5210, Vanderbilt University Medical  
School

8:30 a.m. "The Fibromatoses and Fibrosarcoma"

Arthur Purdy Stout, M.D.,  
Columbia University, College  
of Physicians and Surgeons,  
New York, N. Y.

9:30 a.m. Tumor Seminar

Dr. Arthur Purdy Stout,  
Moderator

12:30 p.m. LUNCH

1:30 p.m. Tumor Seminar continued

4:30 p.m. Annual Business Meeting



6:00 p.m. Cocktail Hour and Annual Dinner at Noel Hotel

D. K. GOTWALD, M.D., President, Nashville

GEORGE S. MAHON, M.D., Vice-President and President Elect, Knoxville

WM. M. TRIBBY, M.D., Secretary-Treasurer, Memphis

★

### Annual Program of the Tennessee State Pediatric Society

Monday, April 9, 1951

Hermitage Hotel, Nashville

Monday morning will feature five case reports and discussions\* by

Lindsay Bishop, M.D.

Howard Nichols, M.D.

Dan Sanders, Jr., M.D.

E. E. Wilkinson, M.D.

Harry Estes, M.D.

LUNCHEON

1:30 p.m. "Problems in Management of the Newborn"

Angus McBryde, M.D.

Duke University School of Medicine

2:00 p.m. "Treatment of Acute Poliomyelitis"

Robert Lawson, M.D.

Bowman Gray Medical School

*Annual Business Session*

Cocktail Party and Banquet at The Maxwell House

C. BARTON ETTER, M.D., President

O. W. HILL, JR., M.D., Secretary

★

### Annual Business Meeting of the Tennessee Academy of General Practice

Monday, April 9, 1951

Maxwell House, Nashville

The Tennessee Academy of General Practice will hold its Annual Business Session and Banquet at the Maxwell House on Monday, April 9, 1951, in conjunction with the Annual Meeting of the Tennessee State Medical Association.

The exact time of the business meeting was not available at press time, but will precede the banquet at 8:00 p.m.

Dr. Wingate Johnson, Bowman Gray School of Medicine, will be the banquet speaker. Dr. Johnson will speak on "Looking Ahead in General Practice."

H. L. MONROE, M.D., President

L. C. JACKSON, M.D., Secretary

★

### Program of the Tennessee State Society of Anesthesiologists

Sunday, April 8, 1951

Nashville, Tenn.

Place of the Meeting to be announced.

12:00 Noon. Luncheon

"Tracheal Intubation with the McIntosh Laryngoscope"

Robert E. Baldwin, M.D., Chattanooga, Tenn.

"Anesthesia in Cardiac Surgery"

W. Forrest Powell, M.D., Knoxville, Tenn.

"Anesthesia for the Diabetic"

George J. Pastorius, M.D., Memphis, Tenn.

★

### Program of the Tennessee Diabetes Association

Monday, April 9

Nashville\*

2:00 p.m. "Some Observations on the Use of NPH Insulin"

Albert S. Easley, M.D., Chattanooga

"Radioiodine in the Appraisal of Thyroid Function and the Treatment of Hyperthyroidism"

Ross C. Kory, M.D.,

Beverly T. Towery, M.D.,

George R. Meneely, M.D.,

Nashville

"The Replacement of Electrolyte Losses in the Management of Diabetes"

Beverly T. Towery, M.D., Nashville

"Clinic Experiences with Pregnancy in Diabetes"

Jean M. Hawkes, M.D., Memphis

\*Types of cases not available at press time.

\*Exact place of meeting not available at press time.

6:00 p.m. Cocktails and Dinner

"Rational Management of Diabetes and Diabetic Acidosis"

Manuel Gardberg, M.D.,  
Guest Speaker, Louisiana  
State University

★

Dr. Harwell Wilson, Professor of Surgery, University of Tennessee, College of Medicine, Memphis was the guest speaker at a dinner meeting of the Nashville Academy of Medicine and Davidson County Medical Society on February 28. His subject was "Thromboembolic Peripheral Vascular Disease."

★

The statement of receipts and disbursements for 1950, on page 122, is taken from the audit of the books of the Association by Osborn and Page, certified public accountants, Nashville.

Copies of the full audit are on file in the Association's office and are available to any member for his inspection. The Schedules referred to in the statement are broken down into detail in the other pages of the audit report.

★

The Roane County Medical Society held its January meeting in the Doctor's Lounge at Oak Ridge Hospital. Following a movie, "Medical Aspects of the Atomic Bomb," the following officers were elected: Dr. W. W. Pugh, Oak Ridge, President; Dr. Stratton Jones, Harriman, Vice-President; Dr. W. P. Hardy, Oak Ridge, Secretary-Treasurer; Dr. L. L. Killeffer, Harriman, Delegate to the Tennessee State Medical Association, and Dr. Dana Nance, Oak Ridge, Alternate Delegate.

The Greene County Medical Society held its monthly meeting on February 6th at Hotel Brumley in Greeneville. Dr. David Waterman of Knoxville read a paper on "Thoracic Surgery" and exhibited a motion picture film following a lecture.

The Knoxville Academy of Medicine has

approved the establishment of a Red Cross blood center in Knoxville in the near future. Dr. Raulston, President, said that it is not certain whether a mobile unit will be given to the Chapter by the National Red Cross. Dr. Raulston pointed out that such a unit would make it possible for people living considerable distances from Knoxville to donate blood.

Members of the Nashville Academy of Medicine were guests of the Nashville Surgical Society at their annual lecture on February 6th at the Maxwell House Hotel. Dr. Lyons, Professor of Surgery at the University of Alabama Medical School, spoke on "Some New Aspects of Carcinoma of the Stomach." The Academy's February 20th meeting was also held at the Maxwell House, at which time Dr. Harwell Wilson, Professor of Surgery, University of Tennessee, addressed the Academy on "Thromboembolic Peripheral Vascular Disease."

The Robertson County Medical Society held its regular monthly meeting in Springfield on Tuesday, February 13. Dr. L. W. Edwards, Chairman of the Association's Public Service Committee, discussed "Medical Ethics—A Cornerstone of Good Public Relations." V. O. Foster, Executive Secretary, discussed plans for the Annual Meeting and reviewed the status of legislation affecting medical care now before the General Assembly.

## NATIONAL NEWS

### Dr. Wilder Heads New Institute of Arthritis and Metabolic Disease

Dr. Russell M. Wilder, former head of Department of Medicine at Mayo Foundation and senior medical consultant at Mayo Clinic, has been appointed director of the new Institute of Arthritis and Metabolic Disease. Dr. Floyd F. Daft, acting director of the Institute of Experimental Biology and Medicine, will be associate director. The new institute is absorbing Experimental Biology and Medicine, including its funds, and will continue the work of that institute.



## TENNESSEE STATE MEDICAL ASSOCIATION, NASHVILLE, TENN.

## Exhibit "A"

## Statement of Cash Receipts and Disbursements Year Ended December 31, 1950

*Income—*

## Receipts: (Schedule A-2)

Dues .....	\$ 29,188.00
American Medical Association Membership Assessments .....	41,699.50
Interest on Investments .....	275.00
Advertising .....	14,557.04
Exhibit Space .....	2,845.00
Subscriptions and Extra Copies of Journals .....	72.00
Sale of Booklets and Pamphlets .....	432.90
Refunds of Expenses Paid .....	25.75
Refund of American Medical Association Assessments .....	25.00
Commissions—American Medical Association .....	389.25
Sundry .....	10.19
Transfers from Investment Fund .....	9,700.00

## Total Income Receipts

\$99,169.63

*Disbursements—*

Medical Journal (Schedule A-3) .....	\$ 10,626.42
Salaries and Wages (Schedule A-4) .....	20,395.80
General Expense (Schedule A-5) .....	14,278.67
Board of Trustees, Committee and Convention Expense (Schedule A-6) .....	6,635.65
Post-Graduate Instruction .....	3,000.00
Assessments Remitted to American Medical Association .....	45,434.50
Social Security (Schedule A-7) .....	227.63
Tax Payments Deducted from 1949 Salaries:	
Social Security .....	\$ 11.72
Withholding Tax .....	420.60
	432.32

\$101,030.99

*Less—Deductions—December, 1950:*

Social Security .....	\$ 29.13
Withholding Tax .....	291.80
	320.93

\$100,710.06

\$ 1,540.43

## Excess of Disbursements over Income Receipts

*Capital—**Receipts—*

Principal-First Mortgage Loans .....	\$25,203.38
Interest-First Mortgage Loans .....	1,855.92
	27,059.30

*Disbursements—*

Purchase of Mortgage Notes .....	\$ 6,399.21
Transfer to General Fund .....	9,700.00
	16,099.21

## Excess of Capital Receipts over Capital Disbursements

\$10,960.09

\$ 9,419.66

*Represented by—*

	General Fund	Investment Fund
Fund Balances (Cash) 12-31-50 .....	\$1,388.57	\$11,372.75
Fund Balances (Cash) 12-31-49 .....	2,929.00	412.66
	\$1,540.43	\$10,960.09

\$ 9,419.66

## MEDICAL NEWS IN TENNESSEE

There will be a meeting of the Tennessee Section of the American Industrial Hygiene Association in Chattanooga on March 23.



### From the Tennessee Department of Public Health—Provisional Morbidity Report for 1950

Provisional morbidity data for the State of Tennessee for 1950 are available upon completion of the December report. The final report published as *Tennessee Morbidity Bulletin* will include corrections and additions of cases from death certificates. This provisional data can be compared with provisional reports for previous years.

The number of reported cases of *diphtheria* in 1950 was smaller than the numbers for the previous four years.

Year	Cases
1946	358
1947	369
1948	292
1949	282
1950	259

The number of reported cases of *gonorrhea* continued to be high with 20,867 cases reported for 1950. The decline of the last five years was continued in 1950.

Year	Cases
1946	26,391
1947	25,844
1948	22,232
1949	22,662
1950	20,867

During 1950 there were 3,391 cases of *malignant neoplasms* reported in the state. This is the fourth year for which malignant neoplasms have been reportable in Tennessee and there was a decrease in the number of cases reported in 1949; however, the number of cases reported is greater than for 1947 or 1948. As in the three previous years, the final report for malignant neoplasms will include many additional cases reported only by death certificates and not included in this figure.

The data for the four years are as follows:

Year	Cases
1947	2,009
1948	2,919
1949	3,669
1950	3,391

The number of cases of *measles* (3,760) was much lower than the number reported for 1949.

The number of cases reported this year was the smallest during the past five years except for 1947 when we only had 1,893 cases reported.

Year	Cases
1946	4,877
1947	1,893
1948	4,629
1949	8,236
1950	3,760

The number of reported cases of *meningococcus meningitis* increased slightly over 1949 with 166 cases being reported. This is the same number of cases reported as in 1948 which is the highest number of cases reported for the past five years.

Year	Cases
1946	152
1947	93
1948	166
1949	146
1950	166

The number of cases of *poliomyelitis* (555) was slightly greater in 1950 than in 1949 when the number of reported cases was 541.

Year	Cases
1946	179
1947	171
1948	376
1949	541
1950	555

The number of cases of *Rocky Mountain spotted fever* reported in 1950 was less than for any year during the past five years.

Year	Cases
1946	33
1947	23
1948	35
1949	33
1950	22

Reports of cases of *syphilis* have continued to decline in 1950. The number of cases (5,214) is smaller than the number of cases reported for the four previous years.

Year	Cases
1946	13,068
1947	10,752
1948	7,663
1949	6,042
1950	5,214

The number of cases of *typhoid fever* reported for 1950 differed only slightly from 1948 and 1949 but showed an increase over the number reported in 1946 and 1947.

Year	Cases
1946	114
1947	104
1948	128
1949	133
1950	126



The number of cases of *tularemia* reported for 1950 was considerably less than for any of the four previous years.

Year	Cases
1946	127
1947	92
1948	65
1949	66
1950	31

There was a great decrease in the number of cases of *typhus fever* reported in 1950 as compared with 1949. The number is practically the same as for 1948 but less than 1946 or 1947.

Year	Cases
1946	59
1947	33
1948	14
1949	28
1950	12

The number of reported cases of *undulant fever* showed a slight increase over 1949 but was lower than any of the other three previous years. The cases reported for the past five years are given below.

Year	Cases
1946	67
1947	88
1948	69
1949	40
1950	48

The number of reported cases of *dysentery* has decreased in comparison with 1948 and 1949 but shows an increase over 1946 and 1947.

Year	Cases
1946	55
1947	67
1948	130
1949	193
1950	90

There was a slight decrease in the number of cases of *rheumatic fever* in comparison with 1949, but was greater than any of the other previous years. This is the fifth year this was a notifiable disease.

Year	Cases
1946	12
1947	67
1948	73
1949	110
1950	91

The number of cases of *tuberculosis* reported for 1950 was lower than in any of the four previous years. The numbers of cases for the last five years are as follows:

Year	Cases
1946	4,603
1947	5,433
1948	5,745

## PERSONAL NEWS

**Dr. R. C. Kimbrough**, Madisonville, was hospitalized early this month, after suffering a light stroke in his office on February 3, 1951.

**Dr. William Howell**, Morristown, was the choice of the Hamblen County Medical Society as their candidate for the State and National contest for the "Outstanding Practitioner of the Year 1951." Dr. Howell will compete with other candidates from the state for the Tennessee State Medical Association award to be given at the Annual Meeting in Nashville on April 9, 10, 11.

A homey and well-deserved tribute was paid **Dr. W. S. Alexander** of Ridgley by his many friends last month. Dr. Alexander's unselfish services to his community was editorialized in the *Lake County Banner*.

**Dr. Thomas A. Wheat** of Lewisburg remained seriously ill in St. Thomas Hospital at press time.

**Dr. Luke Nabors** of Morristown was elected a vice-president of the Midsouth Postgraduate Medical Assembly during its meeting in Memphis last month.

Three Chattanooga physicians—**Drs. R. B. Donaldson, George W. Shelton and John J. Killeffer**—were recently certified by the American Board of Orthopedic Surgery.

**Dr. Ress C. Kory**, Medical Service and Research Laboratory, Veterans Administration Hospital, Nashville, is one of 42 physicians from all over the United States who attended a two weeks' course in Oak Ridge in the use of Radioisotopes. The course centered around the value of "tracer atoms" in medical research and therapy.

**Dr. Jack Springer**, Lawrenceburg, recently volunteered for military service and is now stationed at the U. S. Naval Hospital at Portsmouth, Va.

**Dr. Louis Levy** of Memphis was nominated by the Lions Club of Memphis for the annual Dr. J. W. Bodley Americanism Award of Memphis Post No. 1 of the American Legion. Dr. Levy's interest in civic

projects and youth programs won him this award. The citation said in part: "No man could claim the distinction with more deserving accomplishment nor wear it with more becoming modesty."

**Dr. John Youmans**, dean of the Vanderbilt University School of Medicine, received from Joseph Jean Viala, French consul general in Chicago, a medal as a chevalier of the French Legion of Honor. Dr. Youmans was decorated by the French government for his work with French scientists on nutrition problems.

The Wallace Sanitarium at Memphis has elected the following staff officers for 1951: **Dr. Bland Cannon**, Chairman; **Dr. Charles W. Miller, Jr.**, Vice-Chairman; **Dr. James A. Wallace**, Secretary.



On February 14, 1951, **Dr. William Witt** was honored by a dinner at the Belle Meade Club, celebrating his eighty-fifth birthday. Over three hundred of his colleagues attended the testimonial dinner. Among them were many former students of the Emeritus Professor of Clinical Medicine of Vanderbilt. Dr. T. Fort Bridges was chairman on arrangements. Dr. N. S. Shofner, as toastmaster, called on associates to recall the past activities of Dr. Witt. Dr. Edwin Mims told of Dr. Witt as a student at Vanderbilt; Dr. Lucius Burch recalled his inspiration as a teacher; Dr. W. M. McCabe recounted his experiences as a soldier; Dr. J. O. Manier depicted him as a practitioner of medicine; and Dr. W. B. Anderson described him as a friend and golf partner.

The expression of appreciation for the long years of service in the medical profession was read by Dr. H. H. Shoulders which appreciation appears in full in the Public Service Section of the JOURNAL.

## WOMAN'S AUXILIARY

### Twenty-Third Annual Meeting

The twenty-third annual meeting of the Woman's Auxiliary to the Tennessee State Medical Association will be held at the Noel Hotel, Nashville, on April 9, 10, and 11.

A most cordial invitation is extended to all women who are Auxiliary members or guests of physicians attending the Convention of the Tennessee State Medical Association. Auxiliary members or not, wives of doctors will be most welcome.

Each lady is urged to register promptly upon arrival in Nashville.

**CHAIRMAN OF ARRANGEMENTS:**  
Mrs. R. H. Kampmeier, Nashville.

*Monday, April 9*

12:30 p.m. Board Luncheon

"Cabin by the Spring"

"The Hermitage," Donelson

3:00 p.m. Pre-Convention Board Meeting  
Directly after above luncheon  
Presidents of County Auxiliaries, State Officers and Chairmen of all committees are expected to attend

8:00 p.m. Round-Table Period

Noel Hotel

County Auxiliary Presidents and Presidents-Elect, State Officers and Chairmen of all Committees urged to attend

*Tuesday, April 10*

9:00 a.m. General Annual Meeting

Noel Hotel

All women attending the Convention are cordially invited to attend

Mrs. Park Niceley, President, presiding

1:00 p.m. Luncheon

Noel Hotel

Honoring especially the President of the Woman's Auxiliary to the American Medical Association, the members-at-large of the Woman's Auxiliary, and the wives of the retiring and incoming presidents of the Tennessee State Medical Association

*Wednesday, April 11*

9:30 a.m. Post-Convention Board Meeting  
—Mrs. Lynch Bennett, presiding

Presidents and Presidents-Elect of County Auxiliaries, State Officers and Chairmen of

all Committees are expected to attend.

7:00 p.m. Annual Dinner for members, husbands and guests  
Maxwell House

## ANNOUNCEMENTS

### Graduate Surgical Assembly of the Southeastern Surgical Congress

The Graduate Surgical Assembly of the Southeastern Surgical Congress is to be held at the Hollywood Beach Hotel, Hollywood, Florida, April 11-14. Among the widely known speakers are:

Dr. Otto C. Brantigan, Baltimore, Md.  
Dr. Robert J. Coffey, Washington, D. C.  
Dr. T. C. Davison, Atlanta, Ga.  
Dr. Cless Y. Fordyce, Baltimore, Md.  
Dr. H. Reichard Kahle, New Orleans, La.  
Dr. Oswald S. Lowsley, New York City  
Dr. John Martin, Chicago, Ill.  
Dr. A. T. Miller, Jr., Durham, N. C.  
Dr. Joe M. Parker, Oklahoma City, Okla.  
Dr. R. L. Sanders, Memphis, Tenn.  
Dr. N. S. Shofner, Nashville, Tenn.  
Dr. Ralph M. Stuck, Denver, Colo.  
Dr. Homer S. Swanson, Emory University, Ga.  
Dr. Gershom J. Thompson, Rochester, Minn.

Dr. James W. Watts, Washington, D. C.  
Further information may be obtained from Dr. B. T. Beasley, Atlanta, Ga.



### Coming Medical Meetings

**The International Academy of Proctology** will present its first teaching seminar on proctologic subjects, including the more recent developments, in the form of a symposium and round-table discussion. The session will be held in New York City, April 7, 1951.

**The American College of Physicians** will

conduct its Postgraduate Course No. 4 on "Diseases Due to Allergic and Immune Mechanisms" in Pittsburgh on April 24-28, 1951. Headquarters, Hotel Roosevelt.

**The Southwest Allergy Forum** will be held in San Antonio, Texas, April 8, 9, 10, 1951, with headquarters at the Plaza Hotel.

**The Michael Reese Hospital Postgraduate School** will be offering a two-week course in "Recent Advances in Internal Medicine." This full-time, intensive course will meet from April 30 to May 12, 1951. Clinical and didactic material pertaining to recent advances in diagnosis and therapy will be presented by members of the Department of Internal Medicine, other Clinical Departments and of the Division of Laboratories and Research. For further information, address: Dr. Samuel Soskin, Dean, Twenty-Ninth Street and Ellis Avenue, Chicago 16, Ill.



Dr. Robert C. Thompson announces the opening of his offices for the practice of Dermatology and Syphilology in Chattanooga. Graduating from the University of Tennessee College of Medicine, he received his postgraduate training, leading to board certification, on the service of the late Dr. D. C. Smith, University of Virginia.



### Announcement from U. T.

The University of Tennessee Medical Units, in cooperation with John Gaston Hospital, will offer a postgraduate course in anesthesia, under the administration of the school of nursing. Applicants must be graduates of an approved school of nursing. Tuition will be \$120.00 for the first quarter with fees of \$6.00 each quarter thereafter. The first course will begin in July.

Further information may be obtained from Miss Murry, 874 Union Avenue, Memphis, Tenn.

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*Procaine has been used intravenously for a variety of conditions in the past several years. The author reports his experiments with the similar use of Tetracaine. The reader should recognize that its use is experimental without the background of experience built up with the use of procaine intravenously.*

## CLINICAL EXPERIENCE WITH INTRAVENOUS TETRACAINE (PONTOCAINE)\*

### Report of 160 Cases

J. S. HORAN, M.D., Memphis, Tenn.†

To most anesthesiologists, the concept of giving tetracaine intravenously may seem radical. Yet, only a few years ago procaine was considered to be lethal if injected into the blood stream. Now the intravenous administration of procaine is being used for the relief of pain, itching, some types of cardiac arrhythmias and many types of hypersensitivity. Tetracaine, the higher homologue of procaine, presented certain characteristics which recommended it for intravenous use. The purpose of this paper is to report the intravenous administration of tetracaine in 160 patients. A total of 364 separate injections were given. Results have been excellent in the treatment of various pain syndromes, anxiety and alcoholism.

Tetracaine‡ is a local anesthetic of the procaine series with a fairly long duration of action. Nerve blocks with this drug last from five to six and one-half hours. Because of the reported results obtained with procaine intravenously, it seemed logical to suppose that tetracaine should relieve pain, have a long duration of action and be effective in small doses when given intravenous-

ly. Tetracaine is considered to be more toxic than procaine, but the results of the 364 injections in this series seem to indicate that this toxicity is somewhat overrated. Brown, Thomson, and Fitzgerald<sup>1</sup>, in evaluating the toxicity of local anesthetics, report on 500 obstetrical patients on whom pontocaine was used for continuous caudal analgesia with very little evidence of toxic effects. Cowan<sup>2</sup> found a patient who was allergic to tetracaine used as a corneal anesthetic. Adriani<sup>3</sup> mentions his personal knowledge of ten deaths following the topical application of tetracaine solution to mucous membranes. No reports of deaths following the injection of tetracaine for nerve block or in infiltration have been found. I witnessed an accident in which a surgeon erroneously injected 20 cc. of 2 per cent tetracaine into a patient's tonsillar area. The patient had a convulsion and went into respiratory failure; he revived after about 12 hours of resuscitation and showed no harmful after-effects.

In the present series of 160 patients, one patient vomited following injection and one fainted. The first was a young pregnant woman who had been nauseated before treatment. The second was an old Japanese man who jumped from his chair as the needle was withdrawn; he later received two more injections without recurrence of the syncopal reaction.

For pain, itching, asthma, and burns, the effective dose has been found to be 10 cc. of 0.25 per cent tetracaine, given over a period

\*Read before the Tennessee State Society of Anesthesiologists, Memphis, April 12, 1950.

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‡Tetracaine used was Pontocaine, supplied through courtesy of the Winthrop Chemical Co., Inc., N. Y., in 250 mgm. ampules and 0.15% solution.

of three to five minutes. Patients who have anxiety and tension states tolerate 20 cc. of a 0.25 per cent solution. Weaker solutions seem to be ineffective. In a few cases, such as in the intractable itching of leprosy, 100 mgm. of tetracaine were given in 500 cc. of physiological saline solution. Four patients have received 250 mgm. of tetracaine in 500 cc. of saline solution without harmful effects.

#### Technique

The solution can be made by adding the contents of one 250 mgm. ampule of tetracaine to 100 cc. of physiological saline solution. This gives a concentration of 0.25 per cent. Tetracaine crystals should not be dissolved in distilled water, since the resulting solution is hypotonic.

The patient should be recumbent when the injections are given, since a brief period of dizziness has been observed in some patients. A dose of 10 cc. may be given in about three to five minutes and 20 cc. in five to ten minutes. The patient remains recumbent for about five minutes following treatment. No pre-medication is necessary and oxygen, sedatives or stimulants have not been required. Inhalations of a carbon-dioxide and oxygen mixture have been combined with tetracaine, however, in the treatment of migraine headaches.

#### Indications

Pain and spasm respond well to intravenous tetracaine. Itching has been relieved, even in patients with Addison's disease and in healing burns. Asthmatic attacks have been stopped in 11 patients. Tension states and anxiety require 20 cc. of the drug for relaxation. The various conditions will be considered separately.

*Pain.* In acute or chronic painful conditions of the musculo-skeletal system, 10 cc. of tetracaine intravenously gave relief of pain in about 96 per cent of the patients. In the arthritides relief has resulted in about 50 per cent of patients treated. However, in the type of pain seen in industrial or general practice, low back pain and muscle strains, results have been excellent. Chest pain responds well except when ribs are fractured. Intercostal block for an injured rib gives much better results.

*Spasm.* Spasm accompanying pain has been relieved in every case. This is true not only in the spasm associated with muscle strain, but also in those patients having spasm of smooth muscle. Relaxation of spasm and relief of pain followed intravenous tetracaine in a patient having hemorrhoids and secondary rectal spasm, and another with bladder spasm following cystoscopy.

*Itching.* Thirteen patients were treated for itching. Eleven had leprosy, one Addison's disease, and the other a large burn on the chest and arms. Pruritis was relieved in all cases.

*Asthma.* In 11 patients having asthma, asthmatic attacks were stopped within five minutes by 10 cc. of tetracaine, given intravenously slowly. No adverse effects were seen in these patients.

*Tension states and anxiety.* Several types of tension states have been treated. A group of alcoholics have responded very well to the treatment. Premenstrual tension has been relieved in five women. In connection with tension states, a peculiar delayed action has been observed. Patients report slight relaxation for a few hours and then complete relaxation for two or three days. The cause of this delayed effect is not apparent at this time. This has also been encountered in some types of pain syndromes.

#### Contra-Indications

Known sensitivity to tetracaine is the chief contra-indication to its use, intravenously or otherwise. Liver disease is a relative contra-indication, since local anesthetics are known to be detoxified in this organ. Until further studies can be made, heart disease should also be considered a relative contra-indication. Preliminary work on normal subjects receiving tetracaine during the recording of an electrocardiogram has shown no effect on the tracing during or immediately after the injection. However, the effect of the drug on the diseased heart is not known.

#### Complications and Side Effects

Aside from the one case of vomiting and the one case of syncope, complications have been minor. Following the 20 cc. dose, most

patients experience a transient tinnitus. Some describe a feeling similar to that of induction into general anesthesia. In no case has this been unpleasant, and the duration of the sensations has not been over ten minutes. (I have taken eight injections of 10 cc. each, and have observed no undesirable effects.)

#### Discussion

Good results have been obtained in about 96 per cent of patients treated with intravenous tetracaine. In most cases, relief has been immediate. The effect has often seemed to attain a maximum one or more hours after the injection. No harmful or unpleasant delayed reactions have occurred. After a waiting period of five or ten minutes following the injection, patients are able to move about, drive cars and carry on their usual activities. Most patients have noticed pleasant relaxation and also relief from insomnia following tetracaine. The analgesic effects are prolonged. In all probability, tetracaine given intravenously has a potent blocking effect on pain and spasm arising from reflexes mediated through the inter-nuncial pools, and interrupts pathological physiologic mechanisms by that action. It may be postulated also that the anesthetic increases the local circulation in traumatized areas.

Effects of tetracaine on vital organs are not known. All 11 of the leprous patients

had varying degrees of liver involvement but showed no effect of the anesthetic on that organ. Cardiac reaction to tetracaine is being investigated. An apparent effect in the central nervous system is noted in patients with anxiety and tension. No cumulative effect has been discovered; one patient received 16 infusions and another 20 without evidence of increasing toxicity or habituation.

#### Summary

1. Three hundred and sixty-four intravenous injections of tetracaine have been given to 160 patients. Results have been good in the treatment of pain, itching, asthma and tension states.
2. Toxicity has been minimal. Side effects are mild. No allergies to tetracaine have been noted. The technique appears to be safe.
3. Dosage has been set arbitrarily at 10 to 20 cc. of 0.25 per cent tetracaine.
4. Analgesia and relaxation are prolonged.

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#### The Treatment of Congenital Glaucoma, McArevey, J. B., *Am. J. Oph.*, 34: 333, 1951.

Congenital glaucoma was found to be the cause of blindness in 2.4 to 13% of children in the various schools for the blind. The results are described in 14 children in whom 25 eyes were operated on by the Barkan method of goniotomy and who had been under observation from 2 months to 7 years. Early detection and treat-

ment are of the utmost importance to avoid irreparable damage by the hypertension; the earliest signs are photophobia and corneal edema. The cases are presented in some detail. In 21 of the 25 eyes the tension was reduced successfully and in 2 cases trephining was necessary. In 10 eyes there had been one previous goniotomy, in 7 two previous operations and in 3 three. (Abstracted by Robert J. Warner, M.D., Nashville, Tenn.)



*The authors review the localization and management of foreign bodies in the eye, an important item in industrial and traumatic surgery.*

## INTRA-OCULAR FOREIGN BODIES: DIAGNOSIS, COMPLICATIONS, AND SURGICAL TREATMENT\*

DANIEL F. FISHER, M.D., and D. HERBERT ANTHONY, M.D., Memphis, Tenn.

In 1877, Hirschberg invented the electric magnet with the hope that the problem of intra-ocular foreign bodies of the eye had been solved. This hope was soon realized to be fallacious. No further progress was made until 1894 when the roentgen ray was discovered. Two years later, an ophthalmologist named Clark attempted the crude localization of an intra-ocular foreign body by the application of the X-ray. Since this first effort, over 30 methods have been advanced for the localization of intra-ocular foreign bodies.

The heavy industrialization, automobiles, complex farming machinery and thousands of other mechanical implements have multiplied the striking of metal on metal. These conditions have imposed on the ophthalmologists the need to eliminate the possibility of an intra-ocular foreign body in each accident case, regardless of how trivial it may seem.

*History.* The necessity of stressing a careful history may seem to be a waste of time. However, I know of no condition in which the history is more important or more helpful in making a diagnosis.

Since the majority of intra-ocular foreign body cases may have a medico-legal aspect, it is essential to know exactly how, when and where the accident occurred, and whether the patient was on duty for an insured company. It is necessary to know what the patient was doing at the time and particularly if he was striking one piece of metal with another. It must also be known if there had been previous injury and whether the vision was unequal before the accident. It is also important to learn whether a neighboring worker may have been striking two pieces of metal together.

Also of interest, in cases of the use of a hammer and chisel, is whether the head of the chisel was mushroomed or not. The type of metal should be known, whether soft iron, steel or super-hardened steel.

Other types of cases offer a different history. In some the foreign body may have originated from a firecracker or dynamite cap and rubble rather than metal. In cases of firearm explosions, information should reveal whether the metal might be from the cartridge or from the firearm itself. In instances involving bird shot, it should be determined whether the shot was lead or chilled shot; in a BB gun accident we should learn whether the shot was lead or a magnetic alloy.

*Physical Examination.* The careful estimation of vision, both corrected and uncorrected, for distant and for near vision must be recorded. The lids are searched for abrasion or perforation. The conjunctiva and both cul-de-sacs should be investigated and any sub-conjunctival hemorrhage must be noted. The cornea is then stained and a slit-lamp examination is done with special attention being directed toward a possible hole in the eye. The lens is likewise examined with the slit lamp, the pupil being dilated. The ophthalmoscopic examination is done with special reference to vitreous opacities, recent hemorrhages in the vitreous humor or in the retina. Transillumination of the globe with an ordinary pocket flashlight or a transilluminator may be very helpful in locating a hole in the iris.

### Localization of Intra-ocular Foreign Body

The X-ray, as related to ophthalmic diagnosis, is both important and satisfying in the localization of an intra-ocular foreign body. This requires a close correlation between the clinical and X-ray findings. Anyone who has dealt with intra-ocular or intra-orbital foreign bodies recognizes the

\*Read before the Tennessee Academy of Ophthalmology and Otolaryngology, Memphis, April 10, 1950.

importance of their exact location, since the treatment or surgical intervention is entirely dependent upon their location. Magnetic or non-magnetic metal foreign bodies cannot be differentiated in the X-ray picture. If there is some question as to the presence or absence of a foreign body, it is well to use the anterior-posterior (Caldwell) view. After a foreign body has been demonstrated, it becomes a matter of localization by one of several technics.

The first satisfactory method of localizing intra-ocular foreign bodies was reported by Sweet in 1898; soon thereafter he devised a modification very similar to the first and still used by some roentgenologists. It is not very popular, since there are many chances of error, unless Sweet's complete localization equipment is available and the examiner is familiar with the method, using it frequently. When properly done, this is an excellent and very accurate method of localization. In our opinion it is not any more accurate than Pfeiffer's<sup>1</sup> method, which uses the Comberg contact glass. This method is simple, permits easy calculation and utilizes very inexpensive apparatus. The only special apparatus necessary is a leaded Comberg contact lens, a protractor, a divider and a millimeter rule. Only two exposures are required—one in the anterior-posterior (Caldwell) position, and the other a true lateral one with the affected side applied to the film.

Another simple and easy procedure, though not as accurate as Pfeiffer's, is Yazujian's two-rim gold localizer. A small rim fits the cornea-scleral junction and a larger rim circles the globe close to the eye. If the foreign body is 17 mm. posterior to the large rim of the localizer, the foreign body is usually behind the eyeball. Also, if the foreign body is outside the large rim radially it is outside the eyeball. The senior author has modified this gold localizer by placing an extension on the temporal side. The outside surface of this extension is concave, so that the concavity of the wire fits in the external canthus of the eye. It keeps the localizer from rotating too far temporally while taking the picture. (This

localizer is made in two sizes, one for the child and one for the adult.)

In the so-called physiological localization or parallax motion, a film is exposed in the anterior position and in the lateral position. The patient looks up for half the exposure and down for the other half of the exposure on the same film. This is also repeated, the patient looking to the left and the right. If there is a difference in position of the foreign body in the two pictures, it is usually considered that the foreign body is intra-ocular. However, a foreign body could be just outside the sclera and the movement then might be the same as if it were in the posterior half of the globe. If the foreign body is exactly in the center of the eye, there is no movement in the two pictures. It is well to make these parallax pictures in all cases as a check after using the other methods first.

It has been advocated that injection of air or oxygen into Tenon's capsule gives an accurate localization, if a picture is made before and after the injection. Displacement of the foreign body in the second picture is accepted as an indication that the foreign body is extra-ocular. If it is necessary to inject air into Tenon's capsule to get a satisfactory localization, it has the disadvantage of delaying the operation because of the slow absorption of air. Scheie and Hodes state that air in Tenon's capsule sometimes is not completely absorbed for three or four days and that there is danger of a vitreous prolapse until the air is absorbed. Oxygen is more readily absorbed than air.

Bone free pictures (Vogt's method) may be used to demonstrate very small or low density foreign bodies in the anterior segment of the eyeball. An ordinary dental film, held in a hemostat, is placed between the inner canthus and the nose. When pressed toward the back, pictures of the anterior one-fourth of the eyeball can be made with the patient looking up, down and straight ahead.

Many an eye has been lost because of improper localization of the foreign body and unnecessary manipulation and operative procedures in an attempt to extract it

when an operation was not indicated. By contrast, many eyes have been lost because of slipshod methods of localization and the leaving of a foreign body inside the eyeball when it might have been removed. Foreign bodies are too serious for guesswork or inaccurate localization.

There are other points the X-ray will clarify in addition to the fact that the foreign body is or is not in the globe. Thus the size, shape and position of the long axis, and less accurately, the composition of the substance may be revealed. The size of the foreign body may be calculated with considerable accuracy from the X-ray film and the incision for its removal may be made accordingly. The shape is less accurately determined; the direction of the long axis should be known, since the incision might be made through the sclera in the wrong direction and the foreign body thus be wedged crosswise.

In cases where there is doubt as to the composition of the foreign body, the authors have customarily placed before the uninjured eye a number of materials such as glass, stone, steel, concrete, copper, brass and aluminum for comparison. There is a great variation in the density of foreign bodies which might lodge in the eye or orbit. The specific gravities are as follow: bone is 1.7 to 2.0; brick, 1.4 to 2.2; cement, 2.7 to 3.0; coal, 1.4 to 1.8; emery, 4.0; glass, 2.4 to 2.8; marble, 2.6 to 2.8; slate, 2.6 to 3.3; wood, 0.42 to 0.68; aluminum, 2.70; calcium, 1.34; copper, 8.70; gold, 19.3; iodine, 4.940; slag, 2.0; platinum, 21.37; magnesium, 1.741; manganese, 7.42; mercury, 13.596; steel, 7.86; lead, 11.342; silver, 10.42; limestone, 2.68; ivory, 1.83; tungsten, 18.6; zinc, 7.04; flint glass, 5.04. We have found that bottle, lens, plate, window-pane and automobile glass appear to have the same density on X-ray films. If a piece of steel has been in an eye for some time, the eye may show evidence of siderosis. After many years slow oxidation of steel or copper may reduce the density so that it may be impossible to show it in the X-ray picture. (Such eyes have been X-rayed after enucleation and a foreign body of very low density found.)

### Diagnostic Summary

It is not possible for every ophthalmologist to own an X-ray machine or to be an expert in interpretation of X-rays. However, it is the duty of every ophthalmologist to familiarize himself with the principles and interpretation of foreign body localization rather than to depend merely on a report by the radiologist or technician. There is the tendency of all technicians and of some radiologists to interpret the findings as intra-ocular or extra-ocular when actually it may be a border-line instance which the surgeon should know. The diagnosis must be made by combining the clinical findings with those of the radiology laboratory. Thereby unnecessary surgical procedures frequently may be avoided.

### Surgical Treatment

The optimum time for removal of an intra-ocular foreign body is as promptly as possible. There are some observers, among them Lancaster<sup>2</sup> and a number of English ophthalmologists, who believe that immediate operation is so essential that one should not wait in most cases for localization but should attempt extraction as soon as the patient is seen. We agree that removal of an intra-ocular foreign body is an emergency and should be treated as such. However, we cannot believe that haste is more important than accurate diagnosis and planned operation. If this viewpoint is accepted, the surgeon is in a much better position to remove the particle and at the same time cause less trauma to the eye. (The best papers on the surgical management of intra-ocular foreign bodies have been written since 1935.)

(a) *Magnetic Foreign Bodies.* Particles in the anterior chamber, the posterior chamber or in the lens should be extracted through the anterior chamber route. In practically all cases a keratome incision is made in the clear cornea which will lessen the incidence of prolapse of the iris. The original wound of entrance is rarely used for extraction unless the injury is very recent and the laceration of the cornea is quite large. In a few cases the foreign body may be hopelessly entangled in the posterior surface of the iris and may require iridectomy



or iridotomy. If damage to the lens is severe enough, it is optional whether a linear extraction should be done at the same time; this usually is the procedure of choice.

The removal of particles from the vitreous chamber may follow procedures of two definite schools of thought. Some advocate pulling the foreign body into the anterior chamber in practically all cases by the giant magnet. Another group advocates removal by the posterior route through a scleral incision, using the hand magnet. The recent practice is to pull the foreign body around the lens into the anterior chamber *when sufficient damage from entrance of the foreign body leads one to believe that dense cataractous changes will occur*. In the remainder of the cases it should be removed through scleral incision. There is divided opinion concerning the point in the sclera through which the foreign body is to be removed. Most surgeons prefer to make a posterior scleral incision over the foreign body and remove it by a hand magnet. Others use the approach of Verhoeff,<sup>3</sup> an incision through the sclera parallel to the ora serrata and over the pars plana of the ciliary body some five to six mm. from the limbus. This has the advantage of placing the incision anterior to the vitreous body and the pars optica retinae. The retina here is very thin, firmly attached and relatively avascular. Fralick and Barbour, using this site, prefer the trephine instead of an incision. Needless to say, no one approach answers all cases. Some foreign bodies cannot be pulled across the eyeball for various reasons such as size, shape, amount of magnetic attraction and how firmly they may be embedded. However, we believe that Verhoeff's suggestion is sound and in our hands has given good results when we were able to extract the foreign body through the pars plana. The remainder are removed as necessity dictates. The Burman locator has been a great aid in posterior route extraction, for it enables the surgeon to make his incision much closer to the foreign body. Following extraction, we consider the use of some form of diathermy *absolutely essential* in helping prevent retinal detachment, a most serious complica-

tion. The site of the scleral incision should be given diathermy first and the incision made through this area. The remainder of the diathermy is made in a circular area with at least two barrages around the incision.

(b) *Non-Magnetic Foreign Bodies*. In recent years more non-magnetic foreign bodies such as copper, brass, aluminum, magnesium, glass and the like are being encountered. These offer more of a problem than the magnetic foreign body. Three general methods of attack have been advocated and each having its limits. The most satisfactory and least traumatizing is the removal of the body by direct view with an ophthalmoscope when the foreign body can be seen and the vitreous is clear. Shipman has recently reported a series of cases in which copper foreign bodies were removed in this manner. Cross<sup>4</sup> and others have had considerable success using the biplane fluoroscope and a specially designed forceps. The equipment is not generally available and is too dangerous for surgeon and patient because of radiation exposure. Thorpe<sup>5</sup> has devised an ocular endoscope for removal of bodies under direct view, but the state of the vitreous may greatly limit the use of his instrument. All of these methods require careful localization so that incision for the forceps may be made to the operator's best advantage. Any method, except by direct view, usually causes so much trauma that useful vision is lost, sympathetic ophthalmia invited, and the eyeball thus is eventually enucleated in most cases.

#### Complications

Practically any complication of an intra-ocular foreign body may fall into an early or a late group. One naturally thinks of endophthalmitis or panophthalmitis hemorrhage into the anterior chamber or vitreous body, and secondary glaucoma from a damaged lens, as among the complications of the first 24 to 72 hours. The question of whether a high speed foreign particle is self-sterilizing or not is very difficult to answer. Purulent infections are probably the result of organisms on the eyeball at the time of injury. Iritis or uveitis is usually manifested after from one to seven days. Ret-

inal detachment rarely presents itself before the second or third day, but most of us feel that such a possibility may occur even into the third and fourth months following injury, and occasionally even longer. Sympathetic ophthalmia is not a very common condition, yet it remains such a distinct possibility that very few surgeons fail to consider it as a possibility in any serious injury. There is no exact way of determining the safe period before enucleation of an injured eye may be considered. Gunderson has compiled some interesting figures from World War II, utilizing fourteen cases reported by Wilder<sup>7</sup> from the Army Medical Museum and others which he personally observed. He concluded that twelve days was the absolute limit of safety when sympathetic ophthalmia was a distinct possibility. He re-emphasized that after sympathetic ophthalmia has appeared the exciting eye should not be removed, unless it is sightless, since frequently after the disease is arrested the eye originally injured may have the better vision.

The development of siderosis bulbi has probably been a greater stimulus to the subject of intra-ocular foreign bodies than any other. Davidson<sup>6</sup> in 1933 reported his personal findings in fifteen cases and summarized those previously reported in the literature. His particular interest lay in reference to compensation cases and the length of time required for an intra-ocular iron foreign particle to produce the manifestations of siderosis. He believes that two definite types of siderosis may exist:—one being at the immediate site of the foreign body and which may begin immediately; the second, indirect siderosis, is one in which the tissues at a distance from the foreign body become involved. There seems to be no set pattern for siderosis. Sattler states that it may appear in the lens as early as three weeks after injury. Vossius has noted indirect siderosis in the iris as early as twenty-one days. Balcerek reported a case of siderosis lensis within eight days. Wilder<sup>7</sup> noted one case of extensive iron reaction twenty-three days after injury, though this case had multiple iron particles. One of Davidson's cases showed

siderosis nine days after injury, although the foreign body was not removed until four months later. Another of his cases showed discoloration of the iris eighteen days after injury. All cases of retained intra-ocular iron will not cause siderosis, though it is impossible to predict which cases. Franklin and Cordes<sup>8</sup> have reported a case of forty-six years duration and many cases of ten, twenty and thirty years are described. Most cases of siderosis probably will appear in from three to twelve months. The size of the retained particle influences the time interval; in many cases the particle is encapsulated, thereby preventing a dissemination of the oxidized iron.

Chalcosis, retained copper fragments in the globe, is considered the most irritating of foreign body. Fortunately, the condition is not nearly so common as siderosis, and most cases occur as a result of an explosion in the breech of a faulty firearm, or the explosion of a dynamite cap or copper-covered cartridge. The process by which copper causes damage is oxidation similar to that of iron. Experiments indicate that the oxidation starts almost immediately. Steps for removal of the foreign body should be started at once, regardless of how much trauma to the eyeball may be necessary to remove the particle. The amount of trauma may necessitate enucleation immediately and permission for this should be obtained before operation.

The subject of lead retention in the tissues of the body or in the eyeball might be argued at length. The earliest record of plumbism was in 1867 by Bronvin and forty cases have been reported through 1940. Cross<sup>1</sup> and others have been very successful in removal of intra-ocular lead shot, using the biplane fluoroscope and special forceps. Thorpe<sup>5</sup> has removed numbers of bodies with his endoscope. The authors believe that an attempt should be made to remove the lead pellet if it does not cause too much damage to the eyeball. If the attempt is unsuccessful and if the eye will tolerate the presence of a foreign body of this magnitude, we believe it is a fairly safe gamble to leave the lead shot in the eye temporarily, rather than to sacrifice the eye.



Rocks, stones, wood, glass and plastic are surprisingly well tolerated by some eyes. We believe that unless they can be removed without tremendous trauma to the eyeball, the eye should be given a chance to show its tolerance before considering a more drastic procedure.

### General Treatment

Powerful agents against infection are now available and maximum doses of penicillin, sulfa drug, or aureomycin should be used separately or in combination in every case of serious injury. Sulfonamide preparations are probably absorbed by the intra-ocular tissues in heavier and more effective concentration than either of the other drugs. Typhoid H antigen is probably the most effective of the foreign protein agents and should be used in every case for at least the first week. Tetanus antitoxin should be given the patient unless a sensitivity reaction is present. Absolute bed rest for one week is considered essential and very limited activity for one to three weeks following this is mandatory.

### Summary

(1) A meticulous history and examination is essential in all cases of suspected intra-ocular foreign body.

(2) In every case the intra-ocular foreign body should be localized. The Comberg leaded contact lens, using Pfeiffer's technique, is considered the most satisfactory and accurate of all localization methods.

(3) Electro-coagulation should be done in every foreign body extraction through a scleral incision or wound, to try and prevent retinal detachment.

(4) All magnetic foreign bodies should be removed through the pars plana, if possible, unless there is extensive damage to the lens. If this damage is present, the anterior route through the anterior chamber is possibly best.

(5) In every case of an intra-ocular foreign body sympathetic ophthalmia should be considered a possibility.

(6) Siderosis bulbi and chalcosis are two of the most serious complications of intra-ocular foreign bodies. All cases of siderosis

could be prevented by a more careful examination and history.

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### Discussion

J. WESLEY McKINNEY, M.D., (Memphis): A few points in Dr. Fisher's excellent presentation may be emphasized and elaborated upon with profit.

I agree most heartily that an accurate diagnosis and careful consideration of all the factors of the case are much more important than hurrying to remove the foreign body. The objective should be not merely to extract the foreign body, but to do it with a minimum of trauma. To this end an exact X-ray localization is the first step. We are fortunate in Memphis in having the technic of localization so highly developed by Drs. Fisher and Anthony. It is a matter of great satisfaction to know that the X-ray localization is being well done.

The surgical approach to the removal of a magnetic foreign body depends upon the site and size of the particle in relation to the site and size of the wound of entrance and the amount of damage to the lens. A foreign body within, or anterior to the lens will ordinarily be removed through the wound of entrance if the anterior chamber remains collapsed and the wound is large. Following removal the wound is sutured directly. If, on the other hand, the wound of entrance is small and the anterior chamber is reformed it is usually preferable to conduct the foreign body through an adequate keratome incision. In the event that the foreign body is caught behind the iris it may usually be pulled through the pupil across the anterior chamber to the opposite side before making the keratome incision. It is, therefore, well to check this point with the magnet before making the incision.



The decision as to the route of removal of foreign bodies situated posterior to the lens is often not easy. The following is my surgical philosophy in this regard. In general it may be said that a foreign body which has produced or will probably produce appreciable cataractous changes in the lens should be removed by the anterior route, if possible. It is a common observation on the other hand that small particles may pass through the lens without producing opacity beyond the track of its passage. In the presence of this situation it would be tempting a cataractous fate to try to bring the particle forcibly back into the anterior chamber.

If the wound of entrance is behind the lens and is sufficiently large, an attempt is usually made to remove the foreign body through it. In the absence of such a wound an incision is made either at the pars plana of the ciliary body or at a point nearest the foreign body as determined by the X-ray and Burman Locator. The pars plana route is chosen for particles located in the anterior or central vitreous body. When located farther back, near or in the retina an incision nearest the particle is indicated. This is particularly true if the foreign body is small and therefore less attractable to the magnet. The use of diathermy make subsequent detachment of the retina unlikely.

A final consideration is the electro-magnet itself. The proper manipulation of the magnet to make use of the greatest force attainable is particularly important when the foreign body must be removed from some distance from the surface. It is often impossible to remove by the anterior route particles far back of the lens without the power of the giant magnet. Almost without exception, however, the same particle can be removed by the posterior route with the hand magnet if it is kept in mind that the line of greatest force is along the long axis of the magnet; that the blunt tip will attract from a greater distance than the slender tips; and that the magnetic force is greatest at the make of the current.

I have profited very much by reading and re-reading Dr. Fisher's paper and appreciate the opportunity of discussing it.

JAMES B. STANFORD, M.D. (Memphis): As usual, Dr. Fisher has so completely covered his subject that little is left for discussion. I agree fully with the essayist in his evaluation of history and other means of diagnosis prior to operation. In the hands of an expert no method of localization is superior to Sweet's, but outside of a large ophthalmological hospital Pfeiffer's is perhaps more reliable.

The method of removal, as Dr. Fisher points out, is a matter of judgment in each case and for each surgeon. In my own cases where the foreign body is small and can be drawn into the anterior chamber I prefer the anterior route. However, since electro-coagulation has been available the posterior route is much safer than in my younger days. In cases of posterior removal closure of the scleral wound and closure of the conjunctiva after the method of Dr. Lee Mastin Francis is advisable. Retinal detachment after a few days, or even a month or more after the accident, was not rare before we began to use electro-coagulation.

Early operation is essential except in cases when the foreign body is in the lens. One of my cases retained a foreign body in the cataractous lens about twenty years after the accident, without siderosis. Some foreign bodies become encapsulated and cannot be removed, but fortunately these do little if any further harm.

Infection may be introduced into the eye with the foreign body or may enter later through its wound of entrance. It has been my experience that sulfa drugs and penicillin do little good in these cases. However, we are certain to be criticized if these agents are not employed.

Lancaster contributed much to the efficiency of the electromagnet by insisting on much more winding than was previously used. Electrical engineers objected to excessive winding on account of the increase of heat, but since the instrument is used for such short periods, this fault is minimal compared with the increase in power obtained. Recently an electromagnet has been devised which has marked effect on metals not considered magnetic, but it has not yet been adapted for use in the eye. I have not used the endoscope but have great hopes of its future in cases of non-magnetic foreign bodies.

I am not one of those fortunate ophthalmologists who has not seen sympathetic ophthalmia. A number of these cases have occurred in my practice and I dread them exceedingly. One such case followed a non-penetrating injury, and another followed touching a prolapsed iris with trichloroacetic acid. There is no certain method of determining which case may have the disease and the only certain preventive is early enucleation. Obviously this cannot and should not be practiced in all serious injuries so chances must be taken in many cases. In case of doubt we should always protect ourselves by asking for consultation.

I wish to thank Dr. Fisher for this contribution to our knowledge.

*The author discusses the management of detachment of the retina. Case reports illustrate variations in the treatment as related to individual circumstances.*

## RETINAL DETACHMENT: WITH SPECIAL REFERENCE TO PREOPERATIVE SUBRETINAL DRAINAGE\*

JOHN M. WILSON, M.D., Johnson City, Tenn.

Subretinal drainage is sometimes used as a diagnostic aid in the preoperative search for a retinal tear. We have found it to be of therapeutic value when used preoperatively to flatten a highly raised retina. It is advantageous to find a retinal hole preoperatively, but in a bullous detachment that hole still has to be projected onto the sclera. This may be done theoretically by a complex set of charts and figures as devised by Cowan and McAndrews<sup>1</sup> or by the technique of Stine.<sup>2</sup> A retinal tear lying on or near the sclera can be more accurately projected onto the sclera.

A flat retina gives a much better surgical prognosis than a highly elevated one not only because of the more accurate localization of retinal tears, as mentioned above, but also because much less diathermy treatment is necessary to produce the desired adhesions between the retina and choroid. For this reason the usual procedure of strict bed rest with both eyes bandaged, or the use of pinhole goggles is practiced by most surgeons preoperatively in order that some absorption of the subretinal fluid may take place. This prolongs the patient's preoperative hospitalization.

After the diagnosis is made and the area of elevation and localization of the tear or tears are noted on the chart, our routine consists of admission of the patient to the hospital where he is placed on strict bed rest with both eyes bandaged. The head is placed so that the elevated retina will be dependent. After twenty-four hours an ophthalmoscopic examination is done to note the effect of immobility of the eye on the retina.

If there is still definite retinal elevation, we institute subretinal drainage. The sclera is bared over the highest point of elevation. A 3 mm. incision is made through the sclera, care being taken not to injure the underlying choroid. A 000000 silk suture is placed through each lip of the wound and the lips are sutured back on themselves to insure continued drainage. A punctum dilator heated to red heat is then plunged through the choroid and the subretinal fluid is drained. The patient is put back to bed with a binocular bandage and with the detachment in the dependent position. After forty-eight hours the eye is again examined and the position of the tear noted, or if not previously found, another search is made. A retinal reattachment operation is then performed. The sutures are removed from the scleral wound and the incision is temporarily sutured shut. We use the WEVE surface diathermy over the area of detachment with particular care being taken to seal the retinal tears. The first application is made at the estimated place of the tear and this is checked by an ophthalmoscopic examination. At the end of the operation the scleral sutures are removed to allow continued drainage.

If on the first examination after admission to the hospital the retina is flattening out and is fairly flat after three days, the preliminary sclerotomy is not done but is performed at the end of operation.

Postoperatively the patient is kept in bed until the fourteenth day and discharged on or about the eighteenth day. He wears binocular dressings until leaving the hospital and the pinhole glasses for six weeks to two months thereafter.

We feel that this routine has several advantages, since it,—(1) aids in the localization of retinal tears preoperatively; (2)

\*Read before the Tennessee Academy of Ophthalmology and Otolaryngology, Memphis, April 10, 1950.



requires less diathermy therapy to produce the desired adhesions; (3) lessens the patient's stay in the hospital; (4) gives the patient the fortitude to go through with the ordeal of operation.

We feel that this last point is very important. Two of our patients refused surgery when they were told that they would be in the hospital for a minimum of two weeks and incapacitated for approximately two months and with only a 50 per cent prognosis for a good result. These patients consented to surgery when it was explained that a preliminary procedure would be done, and if it did not appear to help they could leave the hospital. After the retina is in place following the subretinal drainage the patient is encouraged when he can see that the rough form field taken in bed has markedly improved, and in many cases that he can read large letters with an eye that previously had no central vision.

Nine cases were managed with this regime at the McKee-Wilson Eye Hospital during the past year. This is a very small series from which to draw any definite conclusion, though we feel encouraged since our results have been much better than previously. Eight of these cases were successfully treated with the retina finally in place and a full field of vision.

### Case Reports

CASE 1. A 58-year-old man was admitted to the hospital in October, 1948 with a history of blurred vision in the left eye for two weeks. He received a heavy blow on the forehead by a piece of lumber three weeks previously. Examination revealed vision to be reduced to hand movements in the temporal field. There was a marked bullous retinal detachment extending from 12 to 7 o'clock; no tear was found. He was put on complete bed rest and the following day an incision was made through the sclera at 5 o'clock, 10 mm. from the limbus. The choroid was perforated and the subretinal fluid was drained. On examination two days later the retina was flat and the rough form field taken in bed was normal. He was able to read large print. The following day a retinal re-attachment operation was performed. His postoperative course was uneventful. When last seen three months after surgery, the retina was in place, the field of vision was full and the central vision was 20/70.

CASE 2. A 41-year-old man was first examined on October 22, 1948. He complained of poor vision in the right eye which had been discovered acci-

dentally one week previously. He gave no history of trauma. Examination revealed that vision was reduced to 20/80 in the right eye. There was a detachment of the retina with multiple small holes near the periphery. He refused surgery but reconsidered two weeks later and consented to the preliminary operation. He was admitted to the hospital in November, 1948 and on the following day a scleral incision was made at 6:30 o'clock, 11 mm. from the limbus. The subretinal fluid was drained and the scleral lips were sutured back on themselves to assure drainage. Three days later the retina was in place and the rough field of vision had improved. A retinal re-attachment operation was performed. At the last examination, seven months after operation, the retina was in place, the field of vision was normal except for a cut in the superior field to 35 degrees and the central vision was 20/80.

CASE 3. A 20-year-old woman was first examined on December 28, 1948. She had discovered that vision in the left eye was poor upon a routine school physical examination in October. Examination showed vision in the left eye reduced to 20/400; there was detachment of the retina from 3 to 7 o'clock, passing through the macula, with a large disinsertion from 5:30 to 6:30 o'clock. On January 1, a sclerotomy opening was made at 5 o'clock, 13 mm. from the limbus and the subretinal fluid drained. On January 18, a retinal re-attachment operation was performed. She was last examined one year after operation; the retina was in place, the field of vision was full and her central vision was 20/200.

CASE 4. A 52-year-old woman was subjected to the removal of an intumescent cataract on February 3, 1949. This was done intracapsularly through a round pupil from the right eye; an erysiphake was used and a small amount of vitreous was lost as the lens was being delivered. On her tenth postoperative day she slipped on the floor and struck her head on the radiator with no evident damage to the eye. Two weeks following the accident, she noticed a cloud before the right eye and examination revealed a large bullous detachment of the retina from 10 to 2 o'clock with a horse shoe shaped tear at 10:30 o'clock. She was readmitted to the hospital and put on complete bed rest.

Two days later the retina was flat and therefore, preoperative subretinal drainage was not performed. At the end of the operation an incision was made through the sclera and the subretinal fluid was drained. Her postoperative course was uneventful. When last examined ten months after surgery, the retina was in place, the field of vision was normal and the corrected vision was 20/25.

CASE 5. A 55-year-old man had been treated for glaucoma for several years previously. An iridencleisis had been performed on the right eye with a good result. The condition in the left eye had been previously controlled by pilocarpine and furmethide. When these drugs failed to maintain normal tension his physicians decided to try DFP.



One drop of the .1% solution was instilled on May 10, 1949. The action of this drug presumably caused such intense ciliary spasm as to cause a disinsertion of the retina. He was first seen by us the following day. Vision in the right eye was 20/60, vision in the left eye was only hand movement superiorly and temporally. There was a large bullous detachment from 12 to 3 o'clock, no tear was found. He was put to bed on his left side for three days. On May 14, the retina was flat, therefore preoperative subretinal drainage was not performed. We were still not able to see the disinsertion at the ora serrata but we were confident this was present because of the history following the use of DFP. A retinal re-attachment operation was performed and a scleral incision made for the drainage of subretinal fluid. His postoperative course was uneventful. He has been followed carefully for the past ten months and at no time has his tension risen above 18 Schiotz. He has had no medical treatment for glaucoma. The retina is in place, he has a full field of vision, and his central vision is 20/30.

CASE 6. A 50-year-old man had an intracapsular cataract extraction through a round pupil on the right eye on January 31, 1949. His postoperative course was uneventful and his vision was corrected to 20/15. On June 9, 1949 he re-entered the hospital complaining of a cloud over his right eye. He had jumped from a cherry tree the day previously. There was a large bullous detachment of the retina from 9 to 12 o'clock; no tear was found. He was put to bed on his right side and two days later the retina was flat, thus preoperative subretinal drainage was not done. Still no tear was found. The usual retinal re-attachment operation was performed followed by a sclerotomy. He was last seen three months after operation. The retina was in place, he had a full field of vision which was corrected to 20/20.

CASE 7. A 75-year-old woman was first seen on August 30, 1949, because of poor vision in the left eye for a month. There was no history of trauma. Examination revealed a large bullous detachment of the retina from 12 to 4 o'clock. She was put to bed on her left side. On September 2, the retina was still markedly elevated, therefore, the subretinal fluid was drained off. Two days later the retina was in place and the usual retinal re-attachment operation was performed. She was last examined three months following surgery. The retina was in place. The field of vision was full though central vision was less than 20/400 due to marked macular degeneration.

CASE 8. A 72-year-old woman was first examined on September 20, 1949. She had a bullous retinal detachment from 8 to 1 o'clock with a round tear at 10 o'clock. She was put on strict bed rest and a day later a sclerotomy was performed at 11 o'clock, the subretinal fluid being drained. Five days later the usual retinal re-attachment operation was performed. A month later the retina was in place at the area of detachment and the hole was sealed though there was detachment of the entire

lower half of the retina. No new tear was found. Her central vision was 20/100. This patient should have had a second operation but due to her advanced age we did not encourage further surgery.

CASE 9. A 54-year-old man had an intracapsular cataract extraction through a round pupil on his left eye on March 24, 1949. His postoperative course was uneventful and vision was corrected to 20/20.

Eight months later he suddenly noticed a reduction of vision in his left eye. He had noticed flashes of light before this eye one week previously. Examination revealed a bullous detachment of the retina from 11:30 to 3:30 o'clock. No tear was found. He was put to bed on his left side. Two days later the retina was flat, therefore the subretinal fluid was not drained preoperatively. A retinal re-attachment operation was performed, a sclerotomy opening being made at 2 o'clock for subretinal drainage. Three days later it was found that he had suffered a gross vitreous hemorrhage. This gradually cleared. He was last examined three months and one-half postoperatively. The vitreous was clear except for many opacities. The retina was in place, the field of vision was full and the central vision was corrected to 20/50.

#### Comments

Of the nine patients, preoperative subretinal drainage was carried out in five. In the other four the retina flattened out rapidly and did not require preliminary treatment. Retinal tears were only found in five cases. The age of these patients varied from 20 to 75 years with an average age of 53 years.

This series includes three aphakic eyes occurring in 174 cataract extractions or 1.7 per cent. This is a slightly high percentage but in 438 cataract extractions performed by us in the past four years we have had a total of four detachments or 0.91 per cent. This is in keeping with Duehr's<sup>3</sup> percentage of 0.8 per cent. He reported 16 detachments in 1,750 cataracts performed at the University of Wisconsin. Two of our cases were associated with definite trauma and one had vitreous loss at the time of the operation. One case occurred eight months after surgery, one six months, and one after one month.

The case caused by DFP was very interesting. This man had a definite uncontrolled glaucoma before his detachment but since that time his tension has been normal. The diathermy was applied only 8 mm. from the limbus because it was assumed that this was a case of disinsertion at the

ora. We believe that this procedure had the affect of a cyclodiathermy operation.

### Summary

1. Nine cases of retinal detachment are reported.

2. The importance of converting a highly elevated retina into a flat one preoperatively is stressed. If bed rest does not accomplish this it is suggested that the retina be flattened by subretinal drainage preoperatively.

3. We feel that surface diathermy with a flat electrode gives the best surgical results.

4. One case of retinal detachment caused by DFP is reported.

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### Discussion

J. WESLEY McKinney, M.D., (Memphis): No disease of the eye has been the subject of more study in recent years than detachment of the retina. Many phases of the pathogenesis are still poorly understood. Despite our incomplete understanding of the pathogenesis the percentage of cures is progressively increasing. The principle of preoperative subretinal drainage which Dr. Wilson has introduced to us seems logical and should increase the number of cures in this type of case wherein the prognosis has heretofore been uncertain.

Whatever the mechanism of retinal detachment may be, it is a common observation that re-attachment is attained in a high percentage of those cases wherein the retina flattens out with binocular bandaging and rest in bed.

There are two reasons for the good prognosis in this situation. In the first place, it is supposed that the ready absorption of the subretinal fluid indicates a comparatively healthy state of the choroid. Consequently, the likelihood that the retina will remain in contact with the choroid postoperatively is good and the nutrition of the retina will be adequate. In the second place, the more closely the retina approaches the choroid at the time of operation the more certain we can be that the diathermy has reached the retina and that the tear has been sealed. Furthermore, as Dr. Wilson has pointed out, less diathermy will be necessary to accomplish our purpose. In those cases, therefore, wherein the retina does not settle back with rest in bed and binocular bandaging, a resort to preoperative drainage of the subretinal fluid should make it

possible for the operation to be carried out with the retina in a more advantageous position.

Dr. Wilson has reported five cases of retinal detachment in which preoperative drainage of the subretinal fluid was carried out. In four of these, the retina was successfully re-attached. Eighty per cent of cures in this type of case is truly remarkable.

Since reading Dr. Wilson's paper, which he kindly sent me several days ago, I have had occasion to use the procedure he has advocated.

The case was that of a large bullous detachment involving the upper half of the retina. There was a large tear measuring  $1\frac{1}{2}$  disk diameters horizontally and  $\frac{3}{4}$  disk diameter vertically. The retina settled only slightly with rest in bed and binocular bandages. Therefore, incision of the sclera and choroid at 11:00 o'clock was performed. The first day after drainage of the subretinal fluid the retina was found to be flat against the choroid and the patient was much encouraged by the improvement in vision and field. The diathermy operation was performed two days later. The very poor prognosis in this case was most certainly improved by preoperative drainage of the subretinal fluid although it is too early to know what the outcome will be.

I have enjoyed reading this paper and would like to thank Dr. Wilson for bringing the subject of preoperative drainage of the subretinal fluid to our attention.

DR. JAMES B. STANFORD, (Memphis): Everyone will agree, I believe, that a flat retina promotes success in an operation for separated retina. Methods of obtaining a flat retina vary with individual operators and in individual cases. I was much surprised a year or so ago to discover that eye surgeons in one of our sister cities usually operated on the day of admission or the following day. Most of our cases remain in the hospital with both eyes bandaged and with the detachment dependent for at least one week prior to operation. In the majority of our cases this flattens the retina and permits us to locate tears which may have been previously obscured. When the retina is in place, or nearly so, re-attachment may be secured by sealing off the hole or tear. In these cases we have, for some years, omitted trephination of the sclera either before or after use of electro-coagulation.

Our patients usually stay in the hospital for three weeks after the operation with both eyes bandaged, and usually wear pinhole glasses for two or three months afterward.

I have not yet practiced preliminary sclerotomy and cautery puncture of the choroid, but the method appeals to me as practical in those cases where flattening of the retina is not secured by bed rest and posture. Certainly one can not quarrel with a method that produces 88.8% cure.

I should particularly like to commend Dr. Wilson and his associates in their psychological approach in these cases. I have enjoyed Dr. Wilson's paper and have profited by reading it.



*Contact dermatitis offers a diagnostic problem in practically every physician's practice, no matter what his special interests may be. The author has indicated important points both in diagnosis and treatment.*

## CONTACT DERMATITIS\*

FRANK G. WITHERSPOON, M.D., Nashville, Tenn.

Perhaps the commonest cause of skin eruptions is irritation by external factors. It is often necessary to be a detective as well as a physician in tracking down the cause of a rash. It is well enough to say "something is irritating to your skin" or "you are allergic to something," but the actual offending irritant must be discovered and eliminated. The history is essential in learning what the patient had been doing prior to the appearance of the eruption. First, what kind of work has he been doing? In following this line of questioning the physician must familiarize himself with at least a general idea of what the patient's work involves. If he is an industrial worker, what type of, or raw materials does he handle, and what is his particular function in the plant? If he is a farmer, what kind of crops has he been growing and what insecticides has he used? Secondly, where did the eruption appear on the body, and what did it look like at first? What was its course thereafter and what medication was used? Does the eruption appear to improve on week-ends or vacations,—when the environment is changed? Was there a "flare-up" on returning to the regular routine? Did medication appear to make the eruption worse, and if so, what medication?

In searching for etiological factors, hobbies are nearly as important as the vocation of the individual. If he likes to hunt and fish, had he been out pursuing this hobby immediately prior to the appearance of the eruption? Was the eruption on the exposed surfaces of the body?

Next let us consider the housewife. The chronic eczemas of the hands are very frequently due to a contact irritation. Perhaps the commonest of these is from the use of soap and household cleansers. Probably

there has been more of this since the onset of World War II, for two reasons. First, the shortage of good soap powder led to the use of very strong soaps which were "hard" on the skin—Secondly, there have appeared many new synthetic detergents, such as Tide, Dreft, Vel, etc., which seem to be more drying and irritating to a sensitive skin than are the true soaps. Consider the young housewife who spends much time washing diapers, baby clothes and dishes. Small wonder that her hands become de-fatted and that sooner or later so-called "housewives eczema" appears. I believe there is a large element of contact irritation from and sensitization to the soaps in such a case. Other household cleansers, scouring powders, ammonia, disinfectants, and organic solvents must be suspected also. An analogous eruption on the hands often appears in mechanics, dry cleaners, filling station attendants and others exposed to grease, oil, gasoline and organic cleaning fluids. The skin, becoming dry due to the repeated de-fatting, becomes fissured, and secondary infection supervenes. Commercial fishermen or others subject to prolonged immersion of the hands in water frequently develop fissures due to de-fatting.

It is well known in industrial work that the Negro's skin is less susceptible to skin irritants than the white man's. Different types of skin within the Caucasian race also differ in susceptibility. Persons with red or blond hair have a much thinner skin than brunettes and are more subject to contact dermatitis. A worker with a thick oily skin can much better withstand the effect of soap and organic solvents than one with a dry skin. On the other hand, in occupations where heavy grease is likely to soil the clothing, individuals with hairy arms and legs and a seborrheic skin are much more likely to develop an acne-like rash or a fol-

\*Read before the Middle Tennessee Medical Association at Murfreesboro, November 16, 1950.



liculitis. Various portions of the skin also differ in susceptibility to contact irritants. The palms of the hands are the most exposed areas but are rarely affected. In general, the flexures of the extremities, the face and the extremely thin skin, such as the eyelids and prepuce, are more sensitive to irritants than are other areas. Also, the skin of women is more subject to irritation than that of men. Occupational dermatitis is more prevalent in warm weather than in cold for two reasons. First, less clothing is worn, which would permit more contact with irritants; secondly, sweating is more profuse, causing maceration of the skin with consequent lessened resistance to the irritant, which has already been put into solution by the excess moisture.

Personal cleanliness is very important, with clean underclothing and work clothes daily as an essential part of management. A shower bath after work to remove potential irritants is of the utmost importance. We should remember, however, that cleansing materials sometimes cause the dermatitis which has been erroneously attributed to substances used in work. By these I refer to strong soaps, turpentine, gasoline, or similar solvents. I have known mechanics to wash their hands in gasoline and then wonder at the fissuring and occasional acute dermatitis which occurs. Strangely enough industrial workers sometimes develop a mild contact dermatitis in their work and frequently notice that it disappears if work is continued. The worker calls this "hardening," and if the dermatitis is not too severe it is worthwhile to prescribe a mild ointment and protective clothing and allow him to continue work. Of course it is necessary to observe the worker closely to avoid an incapacitating dermatitis. Those workers who suffer a severe attack seldom develop immunity thereafter when work is continued. When acquired, immunity seldom lasts over a few weeks. If work is discontinued, upon returning to work the worker must undergo the hardening process again.

One of the most commonly seen forms of contact dermatitis is due to poison ivy. The eruption appears usually as groups of vesicles on the forearms and legs but may

appear on, or may spread to any part of the body. Vesicles are often in straight lines due to scratching and the mechanical spread of the oily resin. The sensitivity of various individuals to poison ivy dermatitis is quite variable. Furthermore, it varies widely at different times in the same person. I have heard people say, "If I walk through the woods where there is poison ivy I will develop the rash without touching it." This is a popular fallacy. The only way the dermatitis can be caused, except by the rubbing of the vine or leaves against the skin and consequent deposit of the oily irritant, is by the burning of poison ivy plants with resultant oily droplets in the smoke.

It was illustrated to me last January that poison ivy is not necessarily seasonal in incidence. An internist sent me a boy with a typical poison ivy rash with the statement, "If this weren't in the dead of winter, I would swear this boy had poison ivy." Upon questioning his mother I found that the preceding week-end this patient had gone pony riding and had broken off some twigs for a switch. There was your poison ivy!

It would be impossible to enumerate all the forms of contact dermatitis. Few occupations can be considered completely free of possible causative factors. Even the office worker may develop an eruption from handling certain types of paper or from the varnish or furniture polish on the desk. The doctor and nurse are especially exposed in the handling of streptomycin or penicillin, various mercurial antiseptics and of course frequent scrubbing of the skin with strong soap solutions. Frequently one sees an eruption on the thumb and ring finger of dentists from lifting forceps from a disinfectant solution to grasp an object and holding it up so that the antiseptic runs down on to these fingers.

The location of the lesions is of very great importance in arriving at a diagnosis. If the covered portions of the body are involved one should make note of the articles of clothing touching the areas. If in the interscapular area in women, the brassiere elastic should immediately be suspected. If in the axilla dress-shields, deodorants. Nylon hose are the occasional cause of irritation as are the plastic or leatherette lining

of shoes. Jewelry must be suspected if the eruption is in the area where it is worn. Furs, usually because of dyes, are notorious as a cause of skin irritations. Similarly, hair dyes and rinses can be violently irritating as can permanent waving solutions of various kinds. One of the easiest ways I know to make a startling "snap-diagnosis" is to have a woman come into the office with red nail polish and a red thickened eruption about her eyelids. When she stops the use of the nail polish, and you prescribe some soothing local treatment, the eruption clears as if by magic and you have a most grateful patient. An eruption about the mouth should cause one to suspect lipstick, and if on the neck, or behind the ears, the cologne or perfume may be implicated.

It is most important to investigate the medications used on the skin both before and after the eruption appeared. Many cases of simple eczema or other mild dermatosis have been converted into an acute contact dermatitis by the use of drugs to which the skin was intolerant. You probably are bored by the repeated warnings by the dermatologists against the use of sulfonamides and penicillin on the skin. Yet there have been deaths from exfoliative dermatitis after eruptions due to both drugs. There seems to be little use in sensitizing a person to a drug applied to the skin, when that drug might be needed for another disease as a life-saving measure. This is doubly true when other medication is available which is much less sensitizing and not used also for internal medication. I believe most dermatologists will bear me out when I say that all too many of the patients we see exhibit at least some degree of over-treatment when they arrive at our offices. Usually self-medication has been tried first, then the druggist and the neighbor across the back fence have prescribed for them. I think probably the "big 4" of sensitizing local medications are sulfonamides, penicillin, mercurials and furacin. There is really no excuse for using a sulfonamide locally. Penicillin has nearly as high a rate of sensitization. Furacin can very frequently be irritating, and prolonged use of any form of mercury locally often causes a severe

vesicular reaction. Some of the antihistamine drugs appear to cause exacerbations of various dermatoses and their local use, in general, has been disappointing. The various anesthetics are all sensitizers; beware the ointment which "burns at first and then feels good." It probably contains benzocaine, or similar local anesthetic, and may cause much harm.

The treatment of dermatitis venenata must be approached from two angles. First, we must attempt to determine the exact etiological agent and secondly, we must treat the eruption. I don't believe that simple patch testing is a difficult technique to master. In its simplest form a strip of adhesive plaster, one inch wide by two inches long is used. A piece of cellophane is cut, perhaps  $\frac{1}{2}$  inch square, and placed in the center of this strip on the sticky side. Then a small amount of the suspected irritating material is placed on the cellophane, moistened with sweat, if dry, and fastened to the skin. On the back the scapular area is often used, but a more sensitive area is the flexor surface of the forearm or arm. The patch is removed for reading in 48 hours and then observed again after another 48 hours. If a slight erythema is present at the time of the removal of the patch and has faded out by 48 hours, sensitivity to the substance is eliminated. If, however, the erythema has persisted or if a papular or vesicular reaction is present after 48 hours, hypersensitivity to the testing material is considered present. The patient should be instructed to remove the patches if severe itching occurs before the 48 hours is up. It is unwise to apply patch tests during the acute phase of dermatitis since a severe flareup might occur.

In treating a contact eruption, the general rules of dermatological therapy are followed. If a weeping oozing rash is present, use wet compresses! These may be of boric acid, epsom salts, potassium permanganate, aluminum acetate or plain water. It is *most* important that free drainage be promoted! Do not follow the general tendency of putting calamine lotion on an oozing rash since crusting follows with considerable risk of secondary infection. After the oozing has subsided and only an itching resid-



ual rash remains, use a shake lotion such as calamine lotion, but never while it is still weeping. Another frequent mistake is to apply greasy ointments to an acute, exuding dermatitis. This mechanically blocks drainage and causes further edema. If medication must be applied as an ointment, a greaseless cream base or a paste which contains enough powder to absorb considerable exudate should be used. After the acute phase has passed, various ointments, lotions or liniments may be used, depending upon the texture of the skin, the amount of itching or what is desired in regard to therapy.

Dermatitis venenata due to poison ivy is treated a little differently. If the case is not too severe I still use a method of therapy developed several years ago. This consists of the application of phenolized sodium perborate cream to all areas every two hours. Relief is usually quickly apparent and healing takes place in several days. In more severe cases with large bullae, I feel drainage of the bullae and cold sodium perborate or potassium permanganate com-

presses, even reinforced by an ice bag, is the best procedure. Antihistaminics by mouth probably are of some help in controlling the itching. Perhaps some of you will disagree when I state that there is little to be gained by the injection of poison ivy extracts. Their value, or even advisability, in the acute phase of the eruption is doubtful, and for immunizing purposes I feel that the same statement holds true. In fact, a false sense of security is often engendered after a series of poison ivy "shots" and exposure is risked with severe consequences. Calamine lotion may be used after the vesicles have dried, but is a rather poor medication at the time of the acute phase. Ointments are contraindicated because the oily fractions causing the poison ivy rash are miscible with the ointment base and spread easily to adjacent areas.

This has been a rambling discussion in a large field. However, I have tried to make points which I hope will be of value to you in the diagnosis and treatment of a very common condition.

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**The Subsequent Course of Patients Sterilized by Tubal Ligation.** Williams, E. L., Jones, H. E., and Merrill, R. E., *Am. J. Obst. & Gynec.*, 61: 423, 1951.

Among the more frequent operations performed in gynecology is that of sterilization by interruption of the continuity of the Fallopian tubes. Many physicians accept a wide variety of indications for this operation, but others either do not perform the operation or reserve it for individuals with very grave systemic or pelvic abnormalities. Uniform success in preventing future pregnancies has been obtained by any one of a number of operative techniques designed to obstruct or disrupt permanently the patency of the oviducts.

Although much information is available as to the indications for the operation and the success of the various techniques, relatively few data are to be found regarding the subsequent course of these patients. A high percentage of individuals subjected to tubal interruption for purposes of sterilization at the Vanderbilt University Hospital subsequently developed pelvic abnormalities, the most frequent symptom being abnormal uterine hemorrhage. Comparison with the past histories of a

large number of unselected hospitalized obstetrical and gynecological patients indicates the occurrence of bleeding complications to be high and out of proportion to that expected in the general female population. It is the authors' impression that the frequently present systemic disease for which sterilization is performed is causative, rather than any mechanical interference with function resulting from the operative procedure itself. The increased operative risk from the progression of systemic disease and advancing age suggests that the optimum time for any surgical procedure in these patients lies in the present and not in the future.

In view of the very low mortality and morbidity resulting from simple hysterectomy in the absence of distortion of pelvic anatomy, it is the authors' impression that hysterectomy rather than tubal interruption should be considered in those individuals with chronic or progressive diseases warranting destruction of the reproductive function. Procedures short of hysterectomy preserve only the menstrual function of the uterus and leave an organ that is, as far as is known, not only worthless but potentially dangerous. (Abstracted by Hamilton V. Gayden, M.D., Nashville, Tenn.)



# VANDERBILT UNIVERSITY SCHOOL OF MEDICINE NEUROLOGICAL STAFF CONFERENCE\*

DR. CULLY COBB: We have three patients today presenting problems in bacterial infections involving the central nervous system. The general area of bacterial infections seems to be losing attractiveness to researchers now, but the assimilation of all the knowledge that has been gained in recent years will probably go on for some time. These three cases exhibit the problems clinicians have in making the best use of advances made in the basic sciences.

DR. DUANE FORMAN will present James W.

DR. FORMAN: James was 15 years old when he was admitted to the Medical Service in February, 1950. At that time he gave a history of having a blow to the left side of his head two years previously while playing football. He was irrational for several days after that, and had an ecchymosis in the left periorbital region and left eyelid and some bleeding from the left nostril. He was treated with penicillin and recovered satisfactorily. He remained well, but in the year or two before he came here he suffered on several occasions from sore throats and colds. These were accompanied by periorbital swelling on the left, cellulitis in the left periorbital region and left orbital region, and also by moderately severe headaches in the left frontal region. The episodes were always controlled by penicillin.

Two months before he came to the hospital he had one of these attacks of cold and sore throat, developed the periorbital edema, headaches on the left side but at the time also developed a high fever, increasingly severe headache and stiff neck. A diagnosis of meningitis was made following lumbar puncture. He was treated with penicillin for three days and recovered without any ill effects.

Four days before he came into the hospital following a cold, he developed another bout similar to the episode he had had several months before with headache, and fever, stiff neck and periorbital swelling. He was sent here then and on admission had signs of moderately severe meningitis with periorbital tenderness on the left, left frontal tenderness, was dehydrated and was suffering from persistent vomiting. The spinal fluid contained large numbers of inflammatory cells. *Staphylococcus aureus* was cultured from it. He was treated with aureomycin and penicillin and his temperature dropped to normal within a period of sev-

eral days and he was kept on these drugs while in the hospital. About a week or ten days after the admission, the meningitis had been controlled.

He had an operation on his left frontal sinus by Dr. Maness. The mucous membrane was removed from the sinus and was found to be chronically infected, and it was thought at the time that a fracture in the posterior wall of the sinus had been demonstrated. When he recovered from this operation, in about a week or ten days, Dr. Cobb performed a left frontal craniotomy and explored the wall of the frontal sinus. He found fistulous connections between the dura and the sinus which he excised, covering the opening in the dura with gelfoam. There was some purulent material that was removed at the time from the openings in the sinus and the dura. He recovered satisfactorily from that operation and has been well since then. The only thing to show as far as James is concerned is his healed frontal bone flap. He has no other signs and feels well. Have you had any trouble at all, James, since we saw you here last?

PATIENT: No, sir.

DR. COBB: The scar of his sinus operation is in the left eyebrow. The craniotomy is a so-called concealed frontal incision. You can see that it starts here in the anterior temporal area and curves up just behind the hairline to a point approximating the midline. These make good cosmetic operations. Wrinkle your eyebrows. You see there may be a little bit of difference between the wrinkles on the two sides. He has no other signs.

STUDENT ZBAR: Dr. Forman, why was gelfoam used here in repair of the dura instead of polyethylene?

DR. FORMAN: Because there was a defect in the dura which had to be covered and since there was infection present, it would have been hazardous to put in a foreign body. Polyethylene is permanent and gelfoam is absorbed.

DR. EDGAR JONES: It might be worthwhile to bring out a point I don't believe Dr. Forman made clear—why Dr. Cobb suggested to Dr. Maness that he drain the frontal sinus before he did the closure of the hole in the sinus. I am not sure that that was made clear from what Dr. Forman said.

DR. COBB: We felt from the history he gave that this boy had had a fracture of the sinus and orbit with some meningeal laceration. The repeated attacks of orbital cellulitis and later the two attacks of men-

\*From the Departments of Surgery and Medicine (Neurology), Vanderbilt University School of Medicine, Nashville, Tenn., March 27, 1951.

ingitis were the result of a partial fistulous connection between the frontal sinus and the orbit on the one hand and the meninges on the other. X-rays showed very little. There was slight haziness of the left frontal sinus and irregularity on the posterior wall of the sinus which could have been a fracture although it might not have been noticed.

The purpose of Dr. Maness' operation was to establish drainage of the partially obstructed sinus and to remove the source of infection that was leading to the meningitis and orbital cellulitis. Dr. Maness found very little exudate in the frontal sinus but a thickened, chronically inflamed membrane. The operation that was done in his case, the neurosurgical operation, was the same which is used nowadays for repair of cerebrospinal fluid fistulas into the paranasal sinuses and into the nose. An extradural dissection is done, separating the dura from the bone and then the opening in the dura is covered with gelfoam,—a rather poor job of plumbing, but as a practical matter it is much more successful than the older attempts to close the dura by suturing. In this case, when we exposed the posterior wall of the sinus we could see an irregular partly healed fracture line that ran along the posterior wall of the sinus and then about 3 cm. along the roof of the orbit. Spicules of bone projected into the dura and the dura was attached at points all along the fracture line. When these were divided, drops of pus were encountered. I think that the important lesson about his case is that recurrent attacks of meningitis should lead one to suspect some special cause, that is some cause other than the usual pathogenesis of meningitis. In this case, of course, we had the additional lead that there had been several attacks of orbital cellulitis aside from his meningeal episodes. The opportunity to repair lesions such as this is largely to be credited to the antibiotics which prevent fatal complications, such as cavernous sinus infection in the early stages, and cure the individual attacks of meningitis. The surgical treatment itself is dependent on antibiotic protection.

DR. HUGH MORGAN: I was under the

impression that treatment of sinusitis by surgical drainage was getting to be done less and less by the otolaryngologists. Except when there is an acute empyema, it is better to depend on antibiotics than surgical drainage of the sinus.

DR. GUY MANESS: Here there was poor drainage of the sinus which might lead to further contamination of the meninges especially after discontinuance of antibiotic therapy. A drain was placed into the nose preventing any possibility of tension developing within the sinus.

DR. COBB: The next patient.

DR. FORMAN: Jack S. was admitted to our service last August, 11 years old at the time. He had been riding a bicycle an hour before and had either run into a wall or was hit by a car, nobody is quite sure which. He was found unconscious and was unresponsive for about twenty minutes. It was noticed immediately that he had a profuse drainage of blood tinged fluid from his right ear and bleeding from his right nostril which stopped before he came to the hospital. He began improving in sensorium after 20 minutes and by the time he arrived here was normal and was clear mentally except for a slight lethargy.

When we saw him he was nauseated and vomiting and was suffering from vertigo whenever he turned his head in any direction. He had a rapid spontaneous nystagmus which was increased when he looked towards the right. The fluid draining from his right ear was blood tinged spinal fluid and was coming out in quantities large enough to soak a sponge in just a few minutes. It decreased when he was placed with his right ear up. He had a contusion in his right temporo-parietal region, about here, but no outward evidence of fracture and no ecchymosis over the mastoid. He continued to drain spinal fluid for about eight days after he came into the hospital. We started penicillin treatment, 100,000 units every four hours. As soon as his nausea and vomiting had improved, about two days later, sulfadiazine was started, one gram every four hours.

He was kept on this medication and improved gradually as far as his symptoms were concerned. His nystagmus decreased and on the 8th day the spinal fluid drainage had almost ceased. At that time, though he had been afebrile from the time of his admission, he suddenly spiked a fever to 102°, complained of headache, became more lethargic, developed a stiff neck and other signs of meningitis. A lumbar puncture revealed that the spinal fluid had over 1,000 white cells per cu. mm., most of them polymorphonuclear leukocytes. The culture from the fluid grew out a non-hemolytic streptococcus. Sensitivity tests to penicillin, aureomycin, streptomycin and sulfadiazine were made. You can see here on the blackboard that it was much more sensitive to aureomycin than any of the



other drugs. Penicillin gave a poor response. We started other drugs as soon as he developed the meningitis and before we got the sensitivity results, giving him streptomycin and aureomycin and keeping up the penicillin and sulfadiazine. He improved rapidly. His fever dropped to normal in a few days, probably due to the aureomycin, and he recovered clinically. Within a week or ten days he was asymptomatic except for slight vertigo on quick movements of his head and deafness in his right ear. He had a little unsteadiness in walking.

By that time we had the results of the sensitivity tests and therefore sent him home on aureomycin therapy alone for an additional two weeks. He has been followed in the clinic. He has had no recurrence of meningitis. The only symptom which has persisted has been slight impairment of his equilibrium. He is prone to fall on sudden turns and he had a little trouble walking a straight line and occasionally has a little dizziness when he makes a rapid turning movement of his head. He has had intermittent tinnitus in his right ear and he has had deafness which I don't believe has improved any since his accident.

Jack, do you think you have been able to hear any in that right ear?

JACK: No, sir.

DR. FORMAN: How about your dizziness? Do you have any dizziness?

JACK: No, sir.

MRS. S.: Dr. Forman, he still falls easily.

DR. FORMAN: He has just had a spell of scarlet fever.

MRS. S.: He has had scarlet fever since Christmas.

DR. FORMAN: Because of the unsteadiness we excused him from gym this year so he wouldn't fall down all the time when he played games or got pushed. Otherwise he's normally active and strong. Have you been bothered with any headaches?

JACK: No, sir.

DR. FORMAN: How about trouble with your eyes? Do you have trouble seeing? Do you see double?

JACK: Not any more.

DR. FORMAN: Look at my finger. He has a little unsustained nystagmus. His sustained nystagmus ceased several months ago.

(Tests with tuning fork.) Can you hear that?

JACK: No, sir.

DR. FORMAN: (Weber test) Which ear does it seem to go to? Either one of them?

Both of them? Can you hear it in one more than the other? No?

He used to hear that in his right ear. Stand up just a minute, Jack. Put your feet right together. Now close your eyes, and stand there. Can you walk this line (Jack walks line)—that's good. Is there anything else anyone would like to see?

DR. COBB: I guess not. We showed him because he is the only patient who developed meningitis while under treatment intended to protect him from meningitis. He had spinal fluid otorrhea which of course indicated a compound fracture into his ear. Our usual plan in such cases is to give patients with this problem penicillin and sulfadiazine; so we were surprised when, having been under this therapy for eight days, he developed an acute typical purulent meningitis. In the past year we have used aureomycin, terramycin and chloramphenicol more frequently than we did at the time he was here. Dr. Tillman, would you say a word about the sensitivity tests?

DR. CLIFFORD TILLMAN: This organism is extremely resistant to penicillin. I would estimate that 30 or 40 million units of penicillin a day would be required to give a blood level of  $12\frac{1}{2}$  units per cc., the level required to inhibit growth. To find such resistance is extremely unusual and to have it occur while the patient is taking your prophylactic penicillin is certainly unusual. I don't know that you are justified in changing your usual prophylactic regime on the basis of an organism of this rarity and resistance to penicillin. The sensitivity to aureomycin is interesting and his response would bear that out although such sensitivity studies with aureomycin are subject to some error. One might theorize somewhat facetiously, in a way, but based on some facts that this auburn haired boy is susceptible as so many auburn haired people are, to streptococcal infection. He has recently had scarlet fever and developed a streptococcal meningitis.

DR. COBB: We were impressed of course by the fact that his clinical response to aureomycin seemed to correlate extraordinarily well with this sensitivity test. It seems to me that perhaps we ought not to change the prophylactic schedule. Peni-



cillin seems to be a pretty good general prophylactic drug for paranasal infections but it is a big help to us to be able to rely on this type of study where the routine system fails.

DR. TILLMAN: You might add though that there is probably a trend now, in prophylaxis against infections of various kinds, to use antibiotics of a broad spectrum. Aureomycin or terramycin or chloramphenicol certainly have a much broader spectrum of antibiotic effect than does penicillin, the prohibitive thing actually being the cost. Penicillin has become relatively cheap. The other antibiotics are still relatively expensive.

DR. COBB: We have been using chloromycetin for this purpose a little bit more lately because it is supposed to reach higher concentrations in the spinal fluid than any of the other antibiotic preparations.

DR. MORGAN: I would think from the point of view of prophylaxis, which is certainly an interesting thing in this group of cases, that probably penicillin will hold its place not only because it is cheap but because it is effective against the organisms that commonly cause you trouble. The hemolytic streptococcus, the staphylococcus, the pneumococcus are certainly a great deal commoner than is the green streptococcus.

DR. TILLMAN: Dr. Cobb, I would like to ask one other question about the offending agent in the type of meningitis one sees produced by a lumbar puncture contamination with *B. pyocyaneus*. One gets into tremendous difficulty in therapy of that type of meningitis and the outlook is certainly very poor. Do you ever run into that organism in skull fractures, or are you confined to organisms that are common in the respiratory system.

DR. COBB: Very rarely.

DR. WILLIAM ORR: Influenza bacillus is very common in fractures but it is a fairly common resident in the paranasal sinuses.

DR. THOMAS BLAKE: Dr. Cobb, I would like to know what is meant by that 100 units of sulfadiazine. What is a unit of sulfadiazine?

DR. COBB: Dr. Avery tells me that penicillin is still measured in Florey units. In the cases of all the other antibiotics sensi-

tivity tests are reported in micrograms per cc. required to inhibit growth of the organism on a suitable medium.

DR. MORGAN: Dr. Cobb, before you leave this patient, anatomically what do you think of as existing in that ear? He had a ruptured drum, he had an otitis media, he had the communication with the cerebrospinal fluid spaces and he had retrograde infection into them, is that the situation?

DR. COBB: Yes, sir. I think otitis media is only a technicality here.

DR. MORGAN: He did not really have purulent otitis did he?

DR. COBB: No, an avenue of potential contamination was established.

DR. MORGAN: In this situation did the trauma rupture the drum or did the pressure of the spinal fluid in the ear rupture the drum?

DR. COBB: It must have been the injury that ruptured the drum. Some patients with fracture into the petrous bones have blood behind the ear drum and no rupture.

DR. MORGAN: That is what I was thinking.

DR. COBB: That kind of case may have bleeding into the nose or throat, you see, without extending into the external auditory canal.

DR. ORR: I would like to ask how do you account for the Weber test no longer being referred to the right?

DR. COBB: I do not know, unless it is that the Weber is hard to interpret at times.

DR. ORR: Do you think it is like otosclerosis where eventually the nerve becomes involved because of its disuse or something of that nature?

DR. COBB: You see people with partial conduction deafness who still have reference of the Weber to the deaf ear.

DR. ORR: Complete conduction deafness for tremendously long time?

DR. COBB: I have known one or two other people in whom I knew that the Weber ought to be referred to the deaf ear and where the patient simply did not seem able to refer it to either place. I wonder if that is a psychological adaptation due to the fact that the patient knows his ear is deaf.

DR. ORR: I would not think so. I think you would feel that at first but I do not think he would develop that.

DR. FORMAN: There is no question that it was referred to the right ear for a long time in this case.

DR. MORGAN: What is the deafness due to here? Is it due to the interference with the mechanism or transmission of vibrations or what? Presumably it is not due to a neuritis, unless this be the evidence.

DR. COBB: No, but with a fracture into the petrous bone, there is no reason why it could not be due to actual damage from hemorrhage or trauma.

DR. ORR: But why would the Weber be referred to the right at first after the trauma had occurred, and then later after he had gotten well, why would the Weber no longer be referred? It must mean that the nerve must have become progressively involved as time went on.

DR. COBB: The tests indicated conduc-



Fig. I. The dotted line indicates the position of the abscess depressing the left lateral ventricle.

tion deafness at the start and now he seems to have perception deafness. I do not have any answer to that.

DR. FORMAN: Generally in three to



Fig. II. (a) The ventricles are small and shifted slightly to the right prior to aspiration of the parietal abscess. (b) Following treatment of the left parietal abscess hydrocephalus has been caused by enlargement of the cerebellar abscess.



four months, I believe, after injuries like this, hearing starts to return, does it not?

DR. COBB: Failure here after seven months may support Dr. Orr's contention.

DR. MORGAN: What is the story with relation to the recurrence, spontaneous recurrence of meningitis, in a situation like this?

DR. COBB: Recurrent meningitis is uncommon in ear injuries in contrast to the situation in fractures of the cribiform plate and sinuses, as in the previous case. These latter are the only cases in which surgical repair is needed.

Most of you are familiar with the history of Walter S. This is another case where the sensitivity tests correlated well with the clinical course.

On the 6th of September, he came into the hospital with an acute illness. He had headache, vomiting, drowsiness and on examination papilledema, nystagmus on right lateral gaze and ataxia in movements of the right arm and leg. We felt that he must have some kind of an inflammatory lesion in the right side of the cerebellum with this right sided ataxia.

Soon after his admission we made these ventriculograms which I am sure some of you remember (Fig. I), and to make a long story short, found a large left parietal brain abscess. This was not in the cerebellum but deep in the left parietal area and it seemed at that time, with very small ventricles and with this large abscess, that this must have accounted for his right sided motor signs. The abscess was aspirated and he was treated with aureomycin and chloramphenicol. A nonhemolytic streptococcus was cultured and no sensitivity tests were done at that time. But he improved slowly and on the 11th of October went home, having regained a good deal of the use of his right hand and without any headaches or elevated intracranial pressure. He was still receiving aureomycin at that time and continued to take aureomycin for a couple of weeks after he went home.

He was seen once in the out-patient department after that and was getting along fairly well and then on the 9th of November, just a month after he had gone home, he came back in very ill, even sicker than he had been the first time, with elevation of his parietal bone flap which you can see in this film here (Fig. IIb) and with high papilledema. This made it clear, we felt, that in fact he must have a cerebellar abscess too. This ventriculogram (Fig. IIb) shows the extraordinary change which can take place in the course of two months, with hydrocephalus now, indicating a cerebellar mass, where he had had tiny ventricles before. We explored the posterior fossa and found

and aspirated a large abscess in the right cerebellar hemisphere and injected penicillin.

The organism was a non-hemolytic streptococcus and these sensitivity tests were recorded. The organism was sensitive to .04 unit of penicillin per cc., 0.19 of terramycin and 0.7 of chloromycetin but it required more than 100 units per cc. of aureomycin and more than 100 units of streptomycin to control it. We had been wasting a lot of aureomycin in his case. After the second aspiration, treatment with penicillin and terramycin was given and he recovered rapidly.

DR. TILLMAN: There is another point that we ought to mention. It is something we are becoming increasingly aware of and that is that chloramphenicol, aureomycin, and terramycin are bacteriostatic where penicillin is a bacteriocidal agent. The bacteriostatic agent does beautifully in pneumonia where you can stop growth of the organism permitting the body's own mechanisms, such as surface phagocytosis, to enable the patient to get well. In an area such as subacute endocarditis where organisms are in fibrin or in an abscess cavity, bacteriostasis may make the patient much better for a short period of time but after removal of the agent the organism is able to multiply again. In subacute bacterial endocarditis aureomycin, chloromycetin and terramycin have been disappointing. Patients have improved only to relapse and I think such an idea could very well play an important part in infections which are in an abscess cavity. In this patient whose case you have given the organism did not disappear even though the patient got a whole lot better under aureomycin therapy.

DR. ORR: He may have begun to get worse just after leaving the hospital when chloramphenicol was stopped. As I recall he was not so well when he came into the out-patient clinic but he was not really terribly worse.

DR. COBB: That is right although the rapid change followed cessation of the aureomycin. What impressed me is that this organism should have such marked sensitivity to penicillin and terramycin and none at all to aureomycin. I tend to think of terramycin and aureomycin as being the same thing. Evidently that is not the case as far as individual organisms are concerned.

DR. TILLMAN: We are drawing conclu-



sions on sensitivity tests that do not always tell us a great deal. To carry an in vitro sensitivity test into an in vivo situation is fraught with all sorts of hazards. I think the reason our results are always so good is because the antibiotics are mighty fine for what they are designed. We get good results sometimes despite the poor in vitro sensitivity level. I have seen infections respond to aureomycin or terramycin in which the organisms were really not very sensitive.

DR. COBB: Dr. Avery said that this organism was probably *streptococcus mucosus capsulatus* which is generally a very resistant organism and usually fatal. Multiple brain abscesses, metastatic of course, have never had a very good outlook so that being able to control them by antibiotic means helps a lot in the management of a situation like this.

DR. MORGAN: I was going to ask you if the very point you made about brain abscess did not hold true for septic meningitis. Actually these therapeutic agents have just changed the whole outlook for this type of infection, have they not?

DR. COBB: They have not only changed the systems of management but changed the distribution of illnesses. It used to be that lateral sinus thrombosis, the complications of mastoid infections, and brain abscess as the result of direct extension from middle ear infection or paranasal sinus infections were common disorders. They almost no longer exist and today's three cases present the kind of things we have to deal with instead. The other situations do occur but they are rare, or comparatively rare in relation to their previous incidence. Here is a situation where the development of effective treatment is accompanied by a near disappearance of the disease.

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**Progress Notes on Fifty Diabetic Patients Followed Twenty-Five or More Years. Reuting, Ruth E., Arch. Int. Med., 86: 891, 1950.**

Fifty patients with diabetes mellitus of five years' duration or more, whose age at onset was less than 40 years, were selected at random in 1929. Thirty-one of the group survive. Their average age at November 1, 1949 is 44.8 years and the duration of their diabetes 28.4 years. Nineteen of the group have died. The average age at the time of death was 34.9 years and the duration of diabetes 17.6 years. The average duration of diabetes of the 50 patients, living and dead, is now 24.3 years.

Cardiovascular-renal disease has been the most significant cause of death. Nephritis has claimed three patients, coronary occlusion three patients, and cerebral thrombosis one patient.

Pulmonary tuberculosis has been prominent, occurring in seven patients, of whom two survive. This disease was the cause of death in four persons.

Nontuberculous bacterial infection has also been of grave significance and has claimed four patients. It is believed that if recent advances in biochemotherapy had been available to the patients who succumbed to infections their courses might have been significantly altered.

Uncomplicated diabetic coma has been the cause of death in one patient.

Carcinoma has occurred in two patients, affecting the colon in both instances, but has not been the cause of death in any patient.

Gangrene has not occurred. Osteomyelitis has developed twice, necessitating amputation of a toe in one person and partial finger amputation in another.

Retinopathy has been reported in 18 of 29 living patients examined. No instance of blindness has occurred, and there have been no mature cataracts, though early lenticular opacities were reported in four of the living patients.

Arterial calcification has been demonstrated roentgenologically in 27 of 29 persons examined.

Proteinuria of more than 20 mg. per 100 ml. has been found in nine of the 31 living patients and in five exceeded 100 mg. per 100 ml. Eight of the living patients showed moderate azotemia, as evidenced by blood nonprotein nitrogen levels of 40 to 50 mg. per 100 ml. The systolic blood pressure was found to be elevated above 140 mm. Hg. in 13 patients and the diastolic pressure above 80 mm. Hg. in 13 patients.

A living child was born to one patient at the age of 36.4 years, after 27.6 years of diabetes, and the wife of one of the male patients gave birth to a normal child after his diabetes had existed 29.6 years.

The experience in tracing this group of patients is, on the whole, heartening. Although the mortality has been high, the surviving group, numbering 31 patients, or 62 per cent, are with one exception active persons, living useful lives. (Abstracted for the Tennessee Diabetes Association, by Albert Weinstein, M.D., Nashville, Tenn.)

## OUR NEW PRESIDENT



ERNEST G. KELLY, M.D.  
Memphis

CAT.

# We Present Your New President—Ernest G. Kelly

Ernest George Kelly, general surgeon and solid citizen of Memphis, is as forthright as his Irish name. Yet his directness is softened by a simple charm.

As the new President of The Tennessee State Medical Association, Dr. Kelly wants to visit every local Medical Society. There are 48. When he was inaugurated at the 116th Annual Session in Nashville April 10, he said:

"It is my hope that the TSMA in 1951-52 will reach its greatest heights in unity and achievements. Without unity we can have no achievements, and without achievements there is no justification for our existence.

"I would like to see the medical profession of this state rededicate itself to the principle of service above self. Let us concern ourselves more with the service and less with the fee."

The sturdy farm boy from Plantersville, Miss., scarcely thought he would one day be a doctor. In fact, he worried over his chances of completing high school because he had to drop out every April and May to plow. But when he returned, just in time for final exams, Ernest Kelly always licked the handicap. He was a sharp math pupil.

Like many doctors, he was the son of a farmer. His parents were John G. and Frances Morris Kelly. All of his people were teachers or farmers.

He graduated from high school in 1918, went off to War with the American Expeditionary Forces for a year and a half. After discharge, he entered Vanderbilt University on a borrowed \$150, a prayer and pluck. The combination carried him through. He worked at many jobs to finance himself. In three years he won a B.A. Degree—and the coveted M.D. four years later.

Sixty young physicians in the U. S. were appointed to army hospitals. Eight were from the Vanderbilt ROTC Unit. Ernest Kelly was one of the sixty from the medical schools of the country. He went to Beaumont General Hospital in El Paso, Texas, as a First Lieutenant intern.

Ironically, his last examination at Vanderbilt was an *entrance test*. The professors found that he had offered only four

books of Cicero and Vanderbilt required six books for entrance.

After internship, the young surgeon went to Memphis and served a residency at Baptist Memorial Hospital, June, 1928, to August, 1929. Then he opened an office for continuous service in Memphis. He was head of the Department of Surgery at Baptist Memorial Hospital for two one-year terms. He has been assistant professor of surgery at U-T School of Medicine since 1937.

In Memphis he met and married Miss Miriam Herstein, member of an old family, graduate of Wellesley and intensely interested in child welfare organization work. Mrs. Kelly's leadership in Auxiliary affairs has matched that of her husband in Society and Association work. She was President of the Auxiliary to the Memphis and Shelby County Medical Society in 1949-50, and served as vice-president and publicity chairman. She is a Director of the State Auxiliary. She is past president of the Memphis Chapter of the American Association of University Women.

Dr. Kelly is a past president of the Memphis and Shelby County Medical Society, also past treasurer and at various times member of most of its committees. He is senior member of the TSMA Board of Trustees (retiring with his inauguration); past executive committee member of the Baptist Memorial Hospital Liaison between the staff and its administrators; Charter member and past president of the Memphis Surgical Society and a member of the American College of Surgery.

Outside of his profession, Dr. Kelly is a Rotarian, Information and Home Service Committeeman of the Red Cross, an Episcopalian, member of the Delta Kappa Epsilon Greek Letter fraternity and AKA Medical fraternity.

His hobbies are hunting and fishing, raising cattle and feeds. Oh yes, he's a murder mystery fan. Like Mrs. Kelly though, his world away from the job revolves around a blond, appealing boy of 10 named Ernest Kelly, Jr. At age 3, Ernest, Jr., announces he would not be a doctor "because they don't have enough time with their families."

—E. L. B.



# President's Message

## A YEAR OF ACCOMPLISHMENT

ONE HUNDRED SIXTEENTH ANNUAL SESSION, TENNESSEE STATE MEDICAL ASSOCIATION,  
NASHVILLE, APRIL 9-10-11, 1951

CAT.



DR. MONGER

During the momentous year just passed, The Tennessee State Medical Association caught up the challenge of a dawning new era in our profession. I am indeed proud tonight to report the

accomplishments made possible by your good works, your moral support, your loyalty to the Association and your fidelity to the high ideals laid down by Hippocrates.

Before going into a report of my stewardship, it is fitting to quote portions of Sir William Osler on the deep values of taking an active part in the Medical Society. I am quoting the Master Physician.

"The first, and in some respects the most important function is—to lay a foundation for that unity and friendship which is essential to the dignity and usefulness of the profession. Unity and friendship! Strife seems rather to be the very life of the practitioner, whose warfare is incessant against ignorance and prejudice, and sad to have to admit, he too often lets his angry passions rise against his professional brother.

"The meetings in a friendly social way lead to free and open discussion of differences in a spirit that refuses to recognize difference of opinion on the nonessentials of life as a cause of animosity or ill-feeling. An attitude of mind habitually friendly—a little old-fashioned courtesy which makes man shrink from wounding the feelings of a brother—in honor preferring one another; with such a spirit abroad in the Society and among its older men, there is no room for envy, hatred, malice or any uncharitableness. It is the confounded tales of patients

that so often set us by the ears, but if a man makes it a rule never under any circumstances to believe a story told by a patient to the detriment of a fellow practitioner—even if he knows it to be true!—he will have the satisfaction of knowing that he has closed the ears of his soul to ninety-nine lies, and to have missed the hundredth truth will not hurt him.

"Most of the quarrels of doctors are about nonessential miserable trifles and annoyances—the pin pricks of practice—which would sometimes try the patience of Job, but the good fellowship and friendly intercourse of the Medical Society should reduce these to a minimum."

These words of Sir William Osler are more true today than ever. That is so because so many people are trying to drive wedges of difference between us. The champions of political medicine would dance with glee if they could only make us a "house divided." God grant that it shall never be so!

Since we gathered in Memphis last April, Tennessee doctors have put in twelve months of unusually hard work in the field of public service. We created a special committee to spearhead that important job. Ed Bridges was employed as the Public Service Director, and we are all familiar with the very efficient way in which he has carried on his program. He has done a swell job. This committee created a ten-point program, which has been published in the state JOURNAL. You have heard that committee's report, which I commend to you as worthy of a citation. These men gave much time and energy to the task of getting this program off to a good start. Let's review some of the public service activities for the purpose of emphasizing their values.

The committee has worked to make sure

that every community in the state shall have adequate emergency and night service. You individual physicians have met that challenge by remaining loyal to that responsibility.

All of the forty-eight local societies have been urged to follow the pattern of the state association and establish grievance committees to hear and settle patient complaints. The large societies already had such committees established and functioning. Today there are thirty-six such state committees in operation.

Our members, during the past year, have more actively participated in public affairs. They have been better citizens. In the recent elections, doctors, as individuals, have taken an active interest in the men who sought to represent us in the legislative branches of our government. This is a wholesome and heartening trend in the busy medical profession. The state of Florida now has an organization known as The Florida Medical Committee for Better Government. This is entirely independent of the state association. We are familiar with their accomplishments in helping to defeat in the last election a senator who was one of the leaders for political medicine. I am anxiously looking forward to the day when such an organization is functioning in Tennessee.

Our members have shown a constructive leadership in helping to solve the health problems of Tennessee communities. They have hammered hard at the theme that health is *everybody's responsibility*.

We have consciously tried to develop better relations with the press and radio. For years the newspapers and the radio stations have been among the best friends of medicine. They have carried to the people the challenge to fight for free enterprise, unfettered competition, and the rights and dignity of the individual. I take this occasion to thank the press and radio of Tennessee for an excellent piece of work.

We can be proud of the swift progress made by our own doctor-sponsored Tennessee Plan of voluntary, prepayment health insurance. You heard the impressive report of the committee. To show you the rapid growth, let me quote a few figures.

At the end of the first quarter, September 30, 1949, there were 25,000 insured; December 31, 1949: 69,000; March 31, 1950: 128,000; June 30, 1950: 166,000; September 30, 1950: 230,000; and December 31, 1950: 259,000. There was a net increase in nine months of 131,000. There are now twenty-eight reliable companies writing policies. There are now 1,664 members of the Association enrolled. This is about 75 per cent of the membership. This may be roughly compared to a tripod, one leg being the insurance underwriter, another the doctor and a third the public; and it is necessary that there be a close relationship among these three at all times. It is up to us as individual physicians to make sure that those who need medical care do not hesitate to seek it for financial reasons. It is up to us to spread the sound policy of insurance for the protection of our most precious commodity—health and life itself.

Many allied health fields need our scientific help, guidance, advice and support. The past year has brought increased activity in this field. Our members have taken on heavier loads in the fields of cancer, heart, tuberculosis, crippled children, diabetes control and cure campaigns. We have participated more actively in child health programs.

Let's talk a moment about the distaff side of the picture—our real bosses, the ladies. Greater encouragement than ever before has been given to our Woman's Auxiliaries, state and local. They have done an excellent job the past year under the leadership of Mrs. Park Niceley, of whom we in Knoxville are proud. We wish all success to the auxiliary in future years. Nashville has furnished an excellent leader in the person of Mrs. Lynch Bennett, the new State President. This good year 1951 opened up with an auxiliary in every state in the union.

This brief review of public service activities of our association is a proud one. Good progress has been made in both the state and county societies. But not one of the seven goals I mentioned has been reached. I understand my successor will issue to you a solid challenge to push ahead toward these goals.



Please pardon a personal reference, but the Knoxville Academy of Medicine is proud of its dues-paying record. As of March 15, 1951, every one of our 222 members had paid his local, state and American Medical Association dues. We are especially proud of that record of payment of American Medical Association dues. We ask: Why shouldn't the American Medical Association collect dues? For 103 years it did not collect dues. Then the tradition was broken, and the precedent was set.

Newspaper comment on this action has largely centered on the fact that dues shall be compulsory. The medical profession has been criticized for establishing dues by the national organization, and yet thousands of organizations of all kinds in these United States levy and collect dues as a requisite of membership and no one says anything about it. Unions, social clubs, civic groups, golf clubs, lodges, press associations and even church organizations, to mention a few, collect annual dues. If one does not pay, he is dropped from membership. Why, then, is it not proper for the American Medical Association to collect dues from its membership?

The American Medical Association needs dues to discharge its two major responsibilities.

The first responsibility is to expand and make more readily available the voluntary insurance plans which reliable sources estimate have enrolled 50 per cent of our population. This responsibility is aimed at guaranteeing the family budget by insurance.

The second responsibility—and this is one of citizenship—is to see that the American people have ALL the facts about the controversy centering about a proposal that this nation adopt a scheme of political medicine. Physicians are pledged to support a campaign of spreading the real truth so that the people may thus make an intelligent decision—one that will protect their health and lives.

It costs money to do these things. The medical profession does not have access to the federal treasury, although it makes heavy contributions to it. The treasury, mind you, is financing this campaign of

politicians and government officials who would inflict three-minute, assembly-line medicine upon our people. Physicians are proud to spend their own funds and we feel that the newspapers and the public may find it rather refreshing to note that the taxpayers' hard-earned dollars are getting a rest—just for a change.

In planning for dues, the American Medical Association wisely provided that they shall not be paid by physicians who may be seriously ill, who are financially unable, or who have been retired or given emeritus status by their societies.

The American Medical Association and the individual American doctor do not have to apologize for failure of any contribution toward making this a great nation. The record is crystal-clear that the medical profession has done its part. It will continue to do its part.

We need not apologize now—in my opinion—for the fact that our national organization has found it necessary to have membership dues. No worthwhile organization can operate without them. Half a million dollars of American Medical Association dues recently went toward the establishment of a foundation to give cash assistance to struggling medical schools. If American medicine is to safeguard the health and welfare of the people by broadening voluntary coverage and by warning the inroads of the Welfare State, it will require dollars and more dollars, inflated though they be. Let the record show that these are *our* dollars, and we are proud to spend them for a healthier, stronger and more democratic America!

It is puzzling to me that every bill proposed for political medicine has left out the indigent. We all know that this group of our people poses a major health problem. Yet the socializers would not take care of these unfortunate people. So during the past year, The Tennessee State Medical Association sponsored legislation designed to provide complete and free medical care for our wholly indigent citizens. For all these years our members have provided free medical, surgical, and obstetrical care for these people. But there had been difficulty in providing for their hospitalization. Our



Public Service Committee and the Board of Trustees assured Governor Browning that this free physician service would continue. We asked and received his generous support of a bill which sets up a commission to study the need for indigent hospital care. This law passed the last legislature, and the Governor will appoint a commission which will report its findings. We hope eventually to secure annual state appropriations to guarantee that no Tennessean shall suffer lack of *complete* care because he is unable to pay. That is a project of which we can be proud. We are trying to serve our people on the home level where the federal government fails them and shuts them out in the cold of medical neglect.

During the year we have begun another project which is a sort of family affair. We believe the State Association should have its own home, a dignified, efficient, homey headquarters building. No building has been purchased yet, but progress has been made toward this goal. Our association has outgrown the present headquarters, and we expect it to continue to grow.

I am sure you have personally felt the impact of the establishment of a full-time executive secretary, with a full staff, including the addition of a Public Service Department which serves as a field secretaryship. I want to personally commend V. O. Foster for the splendid job he has done in his first year as executive secretary.

I cannot close without paying high tribute

to the editor and staff members of the association's journal with its new look and challenging content. It is a journal of which any medical association can be proud. A bouquet should be given to Dr. R. H. Kampmeier and his fellow workers on the Committee on Scientific Work. They also deserve a deep bow for the fine scientific program of this annual session.

This is a time of world unrest never known before in such an acute stage. As before, the medical profession has met the challenge. In other wars the profession has turned in a heroic record. This time it has done a double duty by serving on the battle front and by working hard to arrange protection for the home front in case the war should come to this country. For the first time since the Revolution, The State Emergency Medical Service Committee and those appointed during the year by local societies have led the way in the state in preparedness. They have prepared that old foundation stone of service which will assure that wherever there is a disaster, pain, and suffering—there, a doctor will be found.

In conclusion, I do thank each of you for the honor you have given me, for the loyalty you have shown, and for the inspiration you have been.

Ralph H. Monger M.D.

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APRIL, 1951

## EDITORIAL

### ATMOSPHERIC SMOKE POLLUTION

The pollution of the air we breathe by smoke is a nuisance to all, especially so in the urban areas where the inhabitants cannot escape it. Since it is irritating to the population much publicity is given to smoke and its possible deleterious effect on health. Though the economic effects of smoke in terms of injury to, and grime on buildings, works of art, interior decorations and fabrics can be totalled in losses of thousands or millions of dollars, the effect of smoke on health is difficult of assessment. (An excellent review of the problem has appeared recently.<sup>1</sup>

That smoke or smog may be harmful is without question when one recognizes its effect as a mass disease as in the smog epidemic in the Meuse Valley in 1930 with 64 deaths, and at Donora, Pennsylvania in 1948 with 20 deaths, and in both instances

severe illness in hundreds. Smog may have been a factor in the latter area in the increased mortality rate in cardiovascular diseases in April, 1945.

Such mass disease proves the harmful effect of smoke, but its effect in circumstances other than epidemic form is difficult to evaluate. Rather one must think of smoke, or one or several of its ingredients as contributing factors in diseases of other causative factors. As in other fields of etiology in disease, smoke probably is an associated cause of disease either as a dominant or as a secondary factor.

The indirect effects of smoke pollution, in terms of interference with sunlight, upon the psychologic, physiologic and metabolic factors in the normal subject are intangible but probably occur without question. The direct effects upon the body tissues of the incomplete combustion of fuels may be several. The particulate matter contains carbon and ash, the latter containing silica in some cities to a concentration as high as 12 per cent. Harmful liquid matter consists mainly of carbon tars. Deleterious gases in the main are hydrocarbons, carbon monoxide and dioxide, sulphur dioxide and trioxide, nitrogen oxides, hydrofluoric acid and fluorides. The sulphur oxides being soluble in water vapor provide sulphurous and sulphuric acids. The population exposure to these agents is variable from time to time, dependent upon humidity, temperature and movement of air. These are the factors which have led to mass epidemics as in the Meuse and Donora incidents.

The relationship between these toxic substances and mortality rates from pneumonia, and incidence and morbidity in bronchitis, pulmonary fibrosis and tuberculosis has offered topics for many papers in the fields of medicine and pathology. But these are diseases which may include multiple causative factors and thus make accurate evaluation absolutely impossible. The same is true in an attempt to relate the incidence of bronchogenic carcinoma to exposure to soot and coal-tar.

Relatively little experimental work has been done in the field of the effects of smoke pollution. A number of studies in which guinea pigs, mice, rats and rabbits

<sup>1</sup>McDonald, J. C., Drinker, P. and Gordon, J. E.: The Epidemiology and Social Significance of Atmospheric Smoke Pollution, Am. J. M. Sc., 221: 325, 1951.

have been exposed to coal dusts and smoke have indicated that mild foreign body reaction and slight reticular fibrosis occur in the lungs. The higher the silica content the greater the fibrosis. There may be evidence of impaired lymph drainage from the lungs with decreased pulmonary resistance to acute infection. An exposure of rabbits, rats and mice for 80 days to atmospheres containing flue gases from anthracite, coke and bituminous coal showed that the pathologic changes in the induced bronchitis, pneumonia, pulmonary fibrosis and failure to gain weight were greater in the bituminous exposure than in the other groups. Dust content and sulphur dioxide content were 12 times greater in bituminous smoke. In massive exposure to Kentucky bituminous coal soot, by bedding mice in soot rather than sawdust, an incidence of cancer of the lung was produced in 8 per cent in contrast to 2 per cent in the control group. Sulphur dioxide and trioxide have been shown to decrease ciliary action in the respiratory mucosa. Toxicity varies with age.

It thus seems likely that a mathematical evaluation of the effect of smoke pollution on the health of a population can never be made. That smoke is deleterious is difficult to deny in the face of epidemics such as in the Meuse Valley and at Donora. Atmospheric conditions fortunately rarely permit such mass exposure and generally account for a most variable exposure to the several ingredients of smoke. However, if respiratory deaths do occur in epidemics, lesser quantities of toxic substances must cause lesser degrees of effects in the respiratory tract varying with individual susceptibility. Particulate matter in the lungs of city dwellers is cumulative and results in some degree of fibrosis and interference with lymph drainage. These factors quite logically may be expected to play a part in the effects of asthma, pulmonary infection and cardiovascular disease even though they cannot be quantitated. Whether soot and smoke may act synergistically with tobacco smoke, which has been indicated strongly recently, in the etiology of carcinoma of the lung cannot be answered at the moment.

Much further study is needed along the lines indicated in an attempt to evaluate the nuisance of atmospheric smoke pollution as a causative or contributory factor in human disease.

R. H. K.



## THE PHYSICAL EXAMINATION

A physician suggested in a half serious vein to a statistician that possibly a great number of laboratory tests and X-ray studies could be made in a given case and be put on a punch card. Thus a diagnosis might be arrived at by a purely mechanical means, thereby eliminating the human factor of judgment which might be erroneous. The statistician having a good sense of humor replied, "I've got a better suggestion. Put the punches on a pianola roll. If you get harmony, the patient is not sick."

Since there is no easy road to diagnosis by mechanical means, the doctor must still in this day and age use his natural senses in diagnosis. Some months ago in this column the importance of the clinical history and its top spot in diagnosis was emphasized.<sup>1</sup>

Certainly the second most important procedure in diagnosis as applied to patients in general is examination of the patient. Though the X-ray may pick up the missed fracture and the blood smear may demonstrate unsuspected leukemia, what the physician sees or hears or feels still is, broadly speaking, his major guide along with the history in arriving at a diagnosis.

One is disturbed at times by the tendency of some doctors to embark on an extensive investigation of a given patient by means of laboratory tests, X-ray examinations, electrocardiograms, etc., even before a complete physical examination is done. (This is one of the large factors back of the cry for governmental medicine,—the high cost of medical care. The medical profession has fostered the belief in the lay person's mind that he must have a host of examinations until the standard of med-

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<sup>1</sup>Editorial. *The Clinical History*, J. Tennessee M. A., 43: 425, 1950.



ical examination has reached such a high cost that the patient's purse cannot stand it. He therefore looks for help to finance it.)

In a busy practice the examination may tend to become perfunctory first and finally degenerates into a gesture. If the physician finds himself getting into such a state, it might be well for him to bring himself up "short," and when the next diagnostic problem presents itself he should strip the patient and spend a good fifteen minutes on a thorough physical examination. (Obviously one is not speaking of the patient having a lacerated finger, a Colles's fracture, or the like.) If the doctor were to do this every month or so he would be reminded of what can be learned by the time honored methods of inspection, palpation, percussion and auscultation. Of these the first is possibly the most important in general. One certainly finds it difficult to disagree with Jenner of smallpox fame when he said, "*More mistakes are made by not looking than by not knowing.*"

Disease lays on the counter—the skin and mucosal surfaces—its wares for the doctor's inspection,—the colors from light to dark icteric tints, the reds from flushes to the almost purple of cyanosis and polycythemia, the pigments,—endogenous of endocrine and metabolic diseases and exogenous of ingested metals and poisons. There are displayed the objects of various shapes and sizes which point to constitutional disease,—the petechiae, the erythematous lesions of the "collagen" diseases, the macules, papules and the like of the infectious diseases. Here also are the curlicues furnished by the blood vessels,—the spiders of liver disease, the collateral circulations of mediastinal and abdominal disease. A few moments with the ophthalmoscope may reveal most important information concerning the vascular system and the intracranial structures.

The eyes and the fingers used in examination of the lymph nodes tell much both in local and systemic disease. So too the cure of cancer of the breast depends on its recognition by inspection and palpation.

In their general application to the field of cardiovascular disease, the use of the eyes,

the fingers and ears have no peer in diagnosis. The findings by these methods, the history and the clinical experience determine in the majority of instances the diagnosis and management of cardiac disease. In acute pulmonary disease these methods also are commonly adequate and forced by circumstances upon the physician. In subacute or chronic disease the X-ray becomes a helpful or necessary adjunct.

In acute abdominal disease the examination, again commonly second to the clinical history, plots the diagnostic or therapeutic course,—the need for simple laboratory studies, or at times complicated ones and the use of the X-ray, or laparotomy. Again in subacute or chronic disease the clinical study,—history and examination should determine whether the barium is to be given from below or above, whether the esophagoscope or the cystoscope are to be employed to extend inspection. And for the "bleeding piles" there is not only inspection, but as written 600 years ago "and thus shall ye recognize it (cancer). Ye shall put thy finger in the rectum." One wonders whether instrument houses sell as many proctoscopes as vaginal speculums,—they are not more difficult to use.

When the menstrual irregularity or abnormality suggests to the physician,—*'let's have a look'* rather than a prescription for a hormone, the vaginal speculum will lead to a higher cure rate in carcinoma of the cervix.<sup>2</sup>

And in that most complicated portion of the body the nervous system, the attitude, the gait, the posture, the pupils, the speech, the tremors, reflexes and the like will point to the diagnosis or at least to diagnostic paths to be taken.

Osler's aphorism applies to the practitioner as well as the medical student for.—when does the physician cease to be a medical student! "The four points of a medical student's compass are: Inspection. Palpation. Percussion and Auscultation."

R. H. K.

<sup>2</sup>Editorial. A Cancer Detection Clinic in Every Doctor's Office. J. Tennessee M. A., 43: 248, 1950.

## WHAT'S NEW IN MEDICINE

### Cancer Diagnosis by Prostatic Smears

Study of prostatic secretion obtained by massage has been shown to contain cells from the prostate, seminal vesicles and ampullae. The cells from the prostate have been recognized as varying, dependent upon the physiological and pathological state of the prostate gland.

Peters and Young (J.A.M.A., 145: 556, 1951) have used the prostatic smear obtained by massage in the search for carcinoma. (The massaging should avoid the seminal vesicles and ampullae insofar as is possible.) The smears were stained by the Papanicolaou method.

Of 200 cases studied, 38 had unsatisfactory smears. Of the 162 patients studied satisfactorily, 44 had carcinoma, proven in 19 by pathologic study. The remaining 25 patients had bone metastases in 5 and digital diagnoses with phosphatase indications in twenty. In 38 of these 44 the smears were positive for malignant cells, suspicious in 4 and negative in two. In 102 instances of benign lesions, one falsely positive smear was reported as proven at operation.

If estrogens have been given the malignancy may not be found.

★

### Therapeutic Effect of Mercuhydrin in the Recognition of Cardiac Disease as a Factor in Bronchial Asthma

The recognition of early left ventricular failure in persons known to have bronchial asthma may be extremely difficult. Certainly the co-existence of these two conditions is not rare.

Gelfand and Widlitz (Am. J. M. Sc., 221: 250, 1951) encountered dyspnea, wheezing and cough in 6 patients over 50 years of age, patients known to have long-standing bronchial asthma and who had previously responded to usual anti-allergic management and now failed to do so. They found that mercuhydrin given subcutaneously caused in several hours a marked clearing of the pulmonary signs and dyspnea. (These

patients had evidence of cardiac disease but were not in congestive failure.) They did well on maintenance doses of the diuretic subsequently. A control group of 20 patients having allergic asthma, and under 40 years of age, treated with mercuhydrin showed no beneficial effects.

★

### Streptokinase and Streptodornase

For a number of years Tillett and associates have studied substances present in broth cultures of beta hemolytic streptococci (Group A) which cause liquefaction of human fibrin clots. Thereby a catalyst was demonstrated which activated a fibrin-lysing system in euglobulin. These investigators named it streptokinase. Another agent was demonstrated to be the enzyme desoxyribonuclease and was called streptodornase. Tillett showed that these two agents in cultures of streptococci were helpful in the management of purulent and fibrinous pleural effusions and more recently demonstrated their beneficial effect when applied locally in infectious lesions.

Miller, Ginsberg, Lipin and Long (J.A.M.A., 145: 620, 1951) used these agents in the local treatment of a variety of infectious processes. They were used in conjunction with surgical measures. The conditions treated included decubitus ulcers, empyema, hemothorax, osteomyelitis, infected amputation stumps, pilonidal cysts with abscess, rectal infections, soft tissue infections and others. The lysis of purulent exudates, blood clots and fibrin leads to rapid clearing of wounds, healthy granulation tissue, more rapid healing and earlier skin grafting if necessary.

★

### Dental Hypoplasia in Case Finding of Congenital Syphilis

Dental examination of 1,639 children of 2,659 enrolled in 18 public schools in a Missouri county revealed 54 suspected of having syphilitic dental hypoplasia. This was an incidence of 3.2 per cent. Of the 54 suspects, 50 had blood tests; 16 or 32 per



cent were found to have positive blood tests and were diagnosed as having congenital syphilis. They ranged from 10-12 years in age. The authors, Beecher, McIntosh and McCart (*J. Ven. Dis. Inf.*, 32: 70, 1951) believe this is a worthwhile method of finding congenital syphilis.

★

### **Desoxycorticosterone as an Anticonvulsant**

It has been known for some years that this steroid hormone acts as an anticonvulsant in convulsive states in experimental animals. With the recent demonstration that desoxycorticosterone is absorbed via the sublingual route, Aird and Gordon (*J. A.M.A.*, 145: 715, 1951) experimented with this hormone in patients refractory to usual treatments.

Ten such patients were selected for study. Six had convulsions of unknown origin, 4 had symptomatic convulsions. Six of the ten had combinations, 8 had petit mal, 6 grand mal and 3 jacksonian seizures. All had been observed for several years and the hormone was given without changing the established anticonvulsive management.

Desoxycorticosterone reduced the frequency of attacks in 7 and abolished seizures in two. With the use of placebo tablets the convulsions returned. The results were best in the cases of petit mal. The authors do not suggest this treatment for general use at this time because of the expense. (It might be added that the effect of the hormone on salt and water balance would require a most rigid observation of the experimental subjects. Ed.)

### **PROGRAMS AND NEWS OF MEDICAL SOCIETIES**

**Dr. Thomas Bryan** of Nashville presented a paper on "Causes of Hoarseness" before the Robertson County Medical Society at Springfield, Tuesday, March 13.

### **MEDICAL NEWS IN TENNESSEE**

#### **More Doctors Going into Uniform in April**

Three hundred doctors and 100 dentists, now in the Reserves, are to receive calls during April to report for duty in the armed forces within 30 days.

This amounts to about one in every 500 doctors and one in every 750 dentists now in private practice, but 900 medical and 850 dental practitioners were "tapped" last December in the preceding call.

Many communities already were suffering from physician shortages in December. By next July, according to the present schedule, one in every eight doctors and dentists in the United States will be in the armed forces. Before World War II ended, about one in every three medical and dental practitioners were in service.

Last September Congress authorized conscription of doctors and dentists under age 50 who are not in the Reserves. In the registration following, 7,403 doctors and 3,116 dentists fell within Priority I, to which the draft would first apply.

Selective Service headquarters recently said that volunteers were coming in so rapidly that it did not appear the draft would be used.

### **PERSONAL NEWS**

**Dr. Henry Flood Madison Garrett**, Lt. (jg), son of Judge and Mrs. David I. Garrett of Monroe, La., was called to report for active duty at the Memphis Naval air station by March 15.

Dr. Garrett became a volunteer member of the medical reserve corps last year. He graduated from the University of Tennessee, School of Medicine; interned at the Baptist Hospital in Memphis and at the Charity Hospital of Louisiana, in New Orleans. He has been in practice in Lafayette since July, 1950.

Dr. Garrett is vice-president of the Macon County Medical Society and a member of



the Macon County Junior Chamber of Commerce.

**Dr. Herbert Acuff**, Knoxville, President of the International College of Physicians and Surgeons, addressed the Sertoma Club of Knoxville at the Farragut Hotel on March 21.

**Dr. R. L. Sanders**, Memphis, was scheduled to receive the American Cancer Society's Distinguished Service Award at a presentation dinner in Memphis on April 2. Dr. Guy Aud, Louisville, President of the National Society, was to make the award. Dr. Sanders has long been active in local and state cancer society activities.

**Dr. John Craven**, formerly of Memphis, was recently appointed Director of the Washington County Health Department, succeeding **Dr. E. C. Mulliniks**, who has re-entered military service.

**Dr. Matt Murfree**, Murfreesboro, called into active duty with the Army Medical Corps last October, has been discharged and has re-opened his office. Captain Murfree served at Fort Campbell Base Hospital during his recent period of duty. During World War II, he served three years, and was with Patton's forces in Europe.

**Dr. J. Peery Sloan**, affable Jamestown medic, along with his Fentress County Colleagues, received a well-deserved tribute for their devotion to their community in The Upper Cumberland Times on March 15th, entitled "Hats Off to Our Doctors."

**Dr. Sam Doane, Jr.**, received his discharge from the Army recently and planned to re-open his offices in Clarksville. He was called back into service last October, serving as chief of the pediatric section of the U. S. Army Hospital at Camp Breckenridge.

**Dr. Jean S. Felton**, Medical Director of the Oak Ridge National Laboratory, M-C'ed a Mental Hygiene Workshop on "Sex Education" recently in the Atomic City.

**Dr. Paul M. Golley**, Chattanooga, was elected president of the Tennessee Public Health Association during the annual meeting held in Nashville last month. He suc-

ceeds **Dr. R. H. Hutcheson**, Commissioner of Public Health. **Dr. W. B. Farris**, Gallatin, was elected president of the Health Section of the organization.

**Dr. Alfred Farrar** has been elected and sworn in as councilman from the first ward of Shelbyville. He will be director of public safety in his capacity as councilman.

## WOMAN'S AUXILIARY

### Greene-Hawkins Auxiliary Organizes 100 Per Cent

Seventeen wives of physicians—100 per cent—formed the Greene-Hawkins County Medical Auxiliary on January 31, 1951.

Officers are Mrs. L. E. Dyer, President; Mrs. Hal Henard, Vice-President; Mrs. V. R. Bottomley, Secretary-Treasurer, and Mrs. H. W. Fox, Reporter. All are from Greeneville.

Others present at the organization meeting were Mrs. James Campbell, Mrs. L. E. Coolidge, Mrs. Bass Cowles, Jr., Mrs. Claude Fox, Mrs. Rae Gibson, Mrs. Lewis McGuffin, and Mrs. George C. Ekvall.

Mrs. Park Niceley and Mrs. George Tharp, State Auxiliary President and Regional Vice-President respectively, assisted in the organization and installation of officers.

"This Auxiliary now has seventeen members, which is 100 per cent," Mrs. Tharp reported to the JOURNAL. "It is a forward-looking group and our State Auxiliary can be proud of its newest chapter."

## LOCATION WANTED

Dear Sir:

I am a graduate of the College of Medicine, University of Tennessee (Class '50) and will complete my year of internship in April, 1951. At present I am searching for a location in a small town in Tennessee, (preferably in East Tennessee) in which I would like to do a general practice. Do you know of any such towns which need an M.D.? If not, could you tell me whom

to contact in order to gain such information?

I would appreciate any information which you can send me.

Sincerely yours,

THOMAS C. BEAMAN, M.D.

## ANNOUNCEMENTS

### Postgraduate Pediatric Course

A postgraduate pediatric course will be

given at the University of Arkansas School of Medicine, Little Rock, Arkansas, by the Pediatric Department, May 14 and 15, 1951. This is a course mainly for practitioners.

Dr. Myron E. Wegman, of Louisiana State University Medical School, New Orleans, Louisiana, and Gilbert B. Forbes, M.D., of Southwestern Medical School, Dallas, Texas, will be the guest speakers.

No fee will be charged for this course.

All interested physicians, nurses and public health workers are invited to attend.



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Diplomate, American Board of Psychiatry and Neurology, Inc., Medical Director

# Journal of the Tennessee State Medical Association

OWNED AND PUBLISHED BY THE ASSOCIATION

Volume XLIV

MAY, 1951

Number 5

## AN ABSTRACT OF THE MINUTES OF THE PROCEEDINGS OF THE HOUSE OF DELEGATES

The House of Delegates of the Tennessee State Medical Association convened at 9:20 a.m. on April 9, 1951, at the Maxwell House in Nashville, Tennessee, Dr. Charles C. Trabue, IV, Speaker of the House, presiding. The House was called to order by the Speaker, and the Credentials Committee reported that a quorum was present. The minutes of the two previous sessions of the House (April 10-12, 1950, and May 13, 14, 1950) were approved. The Speaker then appointed the following reference committees:

### **Amendments to the Constitution and By-laws**

N. S. Shofner, Chairman  
J. Paul Baird  
James L. Hamilton

### **Resolutions**

R. B. Wood, Chairman  
W. D. Stinson  
James A. Loveless

### **Reports of Officers**

John R. Thompson, Jr., Chairman  
A. F. Russell  
Moore J. Smith, Jr.

### **Reports of Committees**

R. N. Buchanan, Jr., Chairman  
Thurman Shipley  
Jarrell Penn

### **General Practitioner's Award**

C. B. Roberts, Chairman  
Hunter Steadman  
H. L. Monroe  
John Lillard  
R. M. Jeter

### **Credentials**

E. R. Zemp, Chairman  
Ben Fowler  
Malcolm Aste

The Speaker stated that the printed agenda (a section of the Handbook) would

be followed as closely as possible. The Speaker then called for the reports of officers. These reports are briefly abstracted below:

### **REPORTS OF OFFICERS**

#### **Report of the President**

The President's report was published in full in the April, 1951, issue of the JOURNAL.

#### **Report of the President-Elect**

The report of the President-Elect, Ernest G. Kelly, is published in full on the President's Page of this issue.

#### **Report of the Secretary-Editor**

Dr. R. H. Kampmeier, Secretary-Editor, assumed the responsibility of editing the JOURNAL with the June, 1950, issue. The Editor set out the following major objectives that he wished to achieve through the JOURNAL:

1. To present scientific and clinical material to the membership
2. To direct reader attention to social and economic developments affecting the medical profession and
3. To provide a published record of news of the members in component societies of the Tennessee State Medical Association.

Dr. Kampmeier, serving also as Chairman of the Committee on Scientific Work, referred to the scientific program for the 116th Annual Meeting as a report of his committee's efforts in presenting an interesting and well-balanced scientific program. The printed program listed fifteen subjects that were selected by the Committee on Scientific Work. The remainder of the program was composed of two symposia.

Dr. Kampmeier concluded his report by expressing the hope that the results of many, many hours devoted to the improvement of the JOURNAL and of the scientific program for the Annual Meeting deserve



the approval of the members of the Tennessee State Medical Association.

#### Report of the Chairman of the Board of Trustees

Dr. Daugh W. Smith, Treasurer and Chairman of the Board of Trustees, reported that the Board of Trustees had held five meetings during the past year. His report set out the significant actions that were taken at these five meetings. Since the minutes of all of these meetings have been abstracted and published in the JOURNAL from time to time under the Organizational News section prepared by the Executive Secretary, these actions are briefly summarized as follows:

#### Regular Meeting, April 12, 1950

1. Elected V. O. Foster Executive Secretary
2. Took under advisement a request from the Postgraduate Committee for additional financial support.
3. Established a Committee on Schools
4. Approved a "working agreement," under which responsibility for the JOURNAL was divided between the Editor and the Executive Secretary. Under this agreement the Editor prepares all scientific material including
  - A. The editing of papers submitted for publication
  - B. The preparation of editorials and
  - C. The editing and publishing of abstracts on medical subjects

The Executive Secretary acts as Business Manager and Managing Editor and prepares all other copy for the JOURNAL.

5. Appointed members to the nineteen standing and special committees.

#### Called Meeting, May 14, 1950

The following actions, among others, were taken at the meeting:

1. Reviewed a proposed budget for the remainder of the fiscal year 1950
2. Completed committee appointments for 1950
3. Created the Committee on Public Service
4. Created a new Committee on Scientific Work
5. Heard Executive Secretary Foster out-

line the duties of the newly created office of Director of Public Service and Field Secretary.

#### Called Meeting, May 21, 1950

Highlights of this all-day session were as follows:

1. Appointed Dr. Joe Johnson, Chattanooga, to the Prepaid Insurance Committee
2. Withheld approval of the Insurance Committee's report, pending receipt of a majority report
3. Declined to approve reimbursement of expenses of members of the House of Delegates
4. Approved a request of the Executive Secretary to add a signature (four pages—yellow section) to the JOURNAL for reporting organizational news and public service activities
5. Authorized the creation of a Committee on Rural Health
6. Created a Committee on Industrial Health
7. Established an honorarium and clerk-hire for the Secretary-Editor.

#### Joint Meetings on May 21 and July 30, 1950

The Board met in joint session with the Public Service Committee on the above dates at which times the ten-point public service program, namely, the Tennessee Ten, was adopted.

#### Semiannual Regular Meeting, November 12, 1950

The following actions, among many others, were taken during an all-day meeting in Nashville:

1. Named a Grievance Committee
2. Authorized the Chairman to appoint members of the Rural Health Committee upon nomination by the Councilors
3. Adopted a detailed budget for the fiscal year 1951
4. Heard a report of the Executive Secretary on possible locations for the Headquarters Office
5. Approved establishment of a loan fund as proposed by the Public Service Committee
6. Heard the Executive Secretary report the successful establishment of a \$10.-

000 Promotional Fund contributed by the underwriters of the Tennessee Plan for publicizing the Plan to the public

7. Approved the Executive Secretary's plan for covering the next session of the General Assembly
8. Adopted a resolution requesting the next General Assembly to appropriate additional funds for the University of Tennessee Medical School
9. Approved the Public Service Committee's proposal to seek legislation establishing an Indigent Hospital and Medical Care Program for Tennessee
10. Approved the establishment of a Radio-Press-Medical Cooperation Code
11. Declined to adopt a resolution which would have made the payment of AMA dues compulsory on the members
12. Adopted a resolution exempting members in the Armed Services from paying dues.

Dr. Smith made the following additional comments to his typed report:

- A. That the Association has invested \$67,143.76
- B. That the action of the special session of the House of Delegates in May had necessitated the transfer of \$9,700 from the Investment Fund to the General Fund
- C. That the financial records of the Association, including the annual audit, are open for inspection to any member of the Association at the Headquarters Office.

#### Report of the Council

Dr. Kyle C. Copenhaver, Chairman of the Council, reported that the Council had heard appeals from four members of the Association from the actions of their local societies during the year. In every case the Council voted unanimously to uphold the decisions of the respective local societies and the ruling of the Councilors involved in barring the appellants from membership.

#### Report of the Executive Secretary

The report of V. O. Foster, the Executive Secretary, pointed out that the office of Executive Secretary was established by ac-

tion of the House of Delegates at its regular annual session last year (April, 1950). Amendments to the Constitution and By-laws and other actions of the House at that meeting set out the duties and responsibilities of the office.

The Executive Secretary has seven major fields of responsibility, namely:

1. *Finance and Budgeting*
2. *Director of Personnel and Office Management*
3. *Business Manager of the Journal and Managing Editor of Publications*
4. *Organizational Services*
5. *Public Service Programs*
6. *Publicity*
7. *Public Relations*

The report then gave a detailed discussion of how the above responsibilities have been carried out during the previous year.

#### Finance and Budgeting

The report stated that the Executive Secretary is responsible for the collections of all funds due the Association, for the bookkeeping and accounting of all financial transactions, and for authorizing and approving all expenditures in accordance with budgetary control.

He prepares an annual budget which is reviewed, revised and approved by the Board of Trustees at its regular semiannual session. The accounts of the Association are audited annually by certified public accountants.

#### Director of Personnel and Office Management

The Executive Secretary is responsible for all employed personnel of the Headquarters Office, allocating the work load, fixing duties of employees, purchasing, and general office management.

The report then described the present Headquarters space as being inadequate and inconvenient.

#### Business Manager of the Journal and Managing Editor of Publications

The Executive Secretary exercises general supervision of the make-up, printing, and mailing of the JOURNAL and other publications of the Association, including the sale of advertising and other revenue-producing projects.

The report set out in detail how a \$10,000 Promotional Fund for publicizing the Tennessee Plan had been voluntarily contributed by the underwriters of the Plan.

### Organizational Services

This section of the report set out in detail the many services which the Headquarters Office is prepared to render to the House of Delegates, the Board of Trustees, the Council, the officers, the twenty standing and special committees, the local medical societies, and the individual members.

### Public Service, Publicity, and Public Relations

The report outlined the difficulties which would have prevented the Executive Secretary from doing a creditable job in the fields of Public Service, Publicity, and Public Relations while at the same time performing the detailed responsibilities outlined in the four previous sections of his report.

Upon request by the Board of Trustees, President Monger called a special meeting of the House of Delegates on May 13, 14, 1950, at which time the present Public Service Program—the Tennessee Ten—was authorized.

The report then outlined the steps which led to the appointment of the Public Service Committee and the employment of a full-time Public Service Director and Field Secretary.

The report concluded with the statement that the Headquarters Office is primarily a service office, with the Executive Secretary handling matters of organizational nature, while the Public Service Director and Field Secretary handles all matters in the fields of Public Service, Publicity and Public Relations.

### Auxiliary Report

Following the reports of officers, the Speaker stated that he had invited the President of the Woman's Auxiliary of the Tennessee State Medical Association to read a report of the Auxiliary's activities. Mrs. Park Niceley, President, was then granted the privilege of the floor and made an excellent report.

The Speaker then introduced the following guests: Mrs. Lynch Bennett, President-Elect of the Woman's Auxiliary, and Mr.

Larry Rember, Field Secretary of the Department of Public Relations of the AMA.

### Report of AMA Delegate

Dr. R. B. Wood, Senior Delegate of the AMA, gave a verbal report of the highlights of the two recent sessions of the AMA House of Delegates, calling particular attention to the activities of the Council on Medical Education, the Council on Medical Service, the report of the President, the Secretary, and the Board of Trustees. Dr. Wood stated that the report of the Veterans' Affairs Committee would outline the delegation's efforts in securing the adoption of the proposed Tennessee Resolution pertaining to the hospital and medical care of veterans with non-service connected disabilities.

### Constitution Amended

The Speaker then stated that the amendment to Section 2, Article VIII, of the Constitution, which had lain on the table since the previous Annual Meeting, was in order, and called for a report from the Reference Committee on Amendments. The Committee reported the amendment out favorably and offered an amendment which was duly adopted. The amendment as amended and which was adopted unanimously, reads as follows: "The President-Elect, the three Vice-Presidents, the Secretary-Editor, and the Speaker of the House of Delegates shall be elected annually for one year, and the Speaker of the House shall hold office for no longer than four consecutive years."

### Introduction of Amendments

The Speaker then announced that the next order of business was the introduction of amendments to the Constitution and By-laws. Dr. Arthur R. Porter, Jr., of Memphis, introduced an amendment to Section 1, Article VIII, of the Constitution, which provided that a Vice-Speaker be added to the list of elected officials of the Association. The amendment was referred to the Reference Committee on Amendments and will lie on the table until the next session. (Amendments to the Constitution must lie on the table for one year.)

Dr. E. R. Zemp introduced an amendment to Chapter XIII of the By-laws which



reads as follows: "In order to amend the By-laws of this Association, a two-thirds majority of the members present and voting shall be necessary. Such amendment, having been filed in writing, shall lie over one day, and any By-law may be suspended during the pending meeting by unanimous consent." The Speaker referred the amendment to the Reference Committee on Amendments.

Dr. Jarrell Penn, Knoxville, introduced the following amendment to Section 3, Chapter XII of the By-laws: "Each component society of this Association may amend its constitution and/or by-laws to provide that payment of dues to the American Medical Association shall be a condition of active membership in that society." The Speaker referred this amendment to the Reference Committee on Amendments.

Dr. Daugh W. Smith of Nashville introduced the following amendment: "That Section 2, Chapter IV, of the By-laws of the Tennessee State Medical Association be amended so as to read as follows: 'Each component society shall be entitled to send to the House of Delegates each year one delegate for every fifty members, and one for every fraction thereof, based upon the number of members in the component society in good standing as of December 1 of the year preceding the meeting of the House. Each component society holding a charter from this Association, which has made its annual report and paid its assessments as provided in this Constitution and By-laws, shall be entitled to at least one delegate.'" The Speaker referred this amendment to the Reference Committee on Amendments.

#### Introduction of Resolutions

The Speaker then called for the introduction of resolutions. None were presented, and the Chair stated that the next order of business would be the reports of committees. These reports are briefly abstracted as follows:

#### REPORTS OF COMMITTEES

##### Committee on Public Service

Dr. L. W. Edwards, Chairman, read the report in which was related the succession

of events which culminated in the present Public Service Program of the Association. The report was primarily a progress report, in which the Committee gave an account of its progress on the ten points embodied in the Tennessee Ten.

Inasmuch as these ten points have been published several times in the JOURNAL, and incorporated into a brochure which has had wide distribution, only the summaries of these accomplishments are included herein.

1. The Committee reported that all of the 48 local societies now have Public Service Committees which are working cooperatively with the Public Service Committee of the Association and with its Director, Mr. Ed Bridges
2. The report revealed that the profession has taken real and positive steps to bring about a renaissance of professional ethics, the disciplining of members, and the guarding of high standards of practice. The Committee further reported that a close observation for abuse by excessive fees is permanently maintained. The report stated that several local societies had established local grievance committees.
3. The report stated that the availability of medical care in Tennessee had been broadened during the past year through the following methods:
  - (1) The sponsorship and successful passage of an Act by the General Assembly which provides for a commission to conduct a study and to make recommendations to the Governor on the establishment of an Indigent Hospital and Medical Care Program
  - (2) The Committee reported the establishment of a seventeen-county Indigent Hospital Care Program in East Tennessee with St. Mary's Hospital in Knoxville providing the clinical facilities
4. The report detailed the Committee's interest and support of the Prepaid Health Insurance Program of the State Association, the Tennessee Plan. The Committee has conducted several conferences with other agencies, at

which time the Tennessee Plan has been a major subject

5. The Committee reported that it was working with the Tennessee State Nurses Association in an organized campaign to recruit additional nurses
6. The report stated that the Committee had encouraged members of the profession to take greater interest in the civic, social, and political affairs of the state. The Committee reported that there was real evidence that the profession is meeting its responsibilities for the social, economic, and political welfare of the state
7. The report summarized in detail how the Committee had cooperated with other agencies in the state interested in the promotion of health and better medical care
8. The Committee reported that ways and means of providing a loan fund to finance the medical education of young men and young women was reviewed. The report stated that no funds have yet been secured but are in prospect
9. The report stated that the Committee had had a favorable response to its request that medical schools institute specific courses in medical ethics
10. The report stated that the Nashville Academy of Medicine had established a Press and Radio Cooperation Code, and that the Knoxville Academy of Medicine had voted to adopt a similar code. The establishment of a state-wide code, sponsored by the Committee, is now under consideration by other agencies, and the outlook for its eventual adoption is favorable.

The report concluded with the observation that solid progress had been made toward the achieving of the ten points which the Committee set out to accomplish less than one year ago.

The report stated that an additional major project would be undertaken during the coming year, and that is the promotion and organization of health councils in all of Tennessee's 95 counties.

Dr. Edwards, the Chairman, after reading the typed report, expressed deep appreciation for the splendid work and excellent

cooperation that he had received from his committeemen. He also commended Mr. Ed Bridges, who has done a superb job as Secretary to the Committee and Director of Public Service.

#### Committee on Scientific Work

This report is embodied in the Secretary-Editor's report.

#### Committee on Hospitals

Dr. D. W. Hailey, Nashville, Chairman, reported that no matters had been reported to the Committee on Hospitals and that no meetings had been held.

#### Committee on Legislation and Public Policy

Highlights of this report, which was read by Dr. C. M. Hamilton, Chairman, are as follows:

The first portion of the report dealt with legislative matters at the national level.

1. Members of the Committee and other officials of the Tennessee State Medical Association attended a two-day Southeastern Legislative Conference in Atlanta in October, 1950. The Conference was sponsored by the Washington Office of the AMA. The Conference resulted in a far better understanding of the legislative problems facing the medical profession at the national level. The attitude of congressmen and senators toward various measures in the Congress affecting medical care was evaluated.
2. Individual physicians over the state urged all representatives to oppose Reorganization Plan 27. Physicians also opposed a section of the Universal Military Training Act which, had it not been defeated, would have placed all men rejected for military service for physical or mental reasons under a system of state medicine.

The second portion of the report was devoted to actions of the Committee during the General Assembly of Tennessee in 1951.

The Committee sought the passage of nine bills designed to protect the health and welfare of the people, eight of which were enacted into law. The ninth bill was withdrawn.

Three bills were opposed on the grounds of not being in the public interest. Two died in committee and the third received the Governor's pocket veto.

The bills which were favored and which were enacted are as follows:

- A. House Joint Resolution No. 6, which created a commission which will study ways and means of providing a state program for the hospital and medical care of the indigent.
- B. House Bill 53 which amended the Hospital Licensing Law and provides for the registration of any doctor's office equipped with one or more hospital beds. The bill provides for a registration fee of \$25. Registration forms are obtainable from the office of Dr. George Demmer, State Department of Public Health, Nashville, Tennessee.
- C. House Bill 52. This Act amends the Crippled Children's Act and redefines "chronically handicapped children" so as to include speech and hearing defects. This bill will permit the establishment of and state cooperation with a Tennessee Hearing and Speech Foundation.
- D. Senate Bill 123, known as the Nurses' Practice Act, created a Board for the administration of the provisions of the Act. The Act also defines various grades of nursing, provides for examination and licensing, and provides for the accrediting of nursing schools.
- E. Senate Bill 562 created a Board of Trustees for the several state tuberculosis hospitals, and provides for the management of such hospitals by the Board.
- F. House Bill 283. This Act provides for the appointment of the Director of the State Planning Commission to membership on the Stream Pollution Board.
- G. House Bill 284. This Act restores to the Stream Pollution Agency the police powers which had been taken away from it by a legislative act in 1949.
- H. Senate Bill 220. This Act defines the qualifications of the State Commis-

sioner of Public Health and requires that he be a licensed doctor of medicine, and that he have a master's degree in public health.

The following bills were opposed:

- A. A bill which would have granted a medical license to a Kentucky physician to practice in a northeastern county of Tennessee.
- B. A measure which would have permitted chiropractors to practice medicine in four specifically limited ways.
- C. A bill which would have abrogated the privilege of physicians in offering testimony in civil courts by deposition. The Committee recommended that doctors be particularly careful not to abuse the privilege of depositions and stated that it was the Committee's opinion that this abuse by a few physicians had evoked this bill as a punitive measure.

The Committee also called attention to an amendment to the Pharmacy Act which prevents the refilling of prescriptions without specific instructions from the physician.

A bill which provided that optometrists might examine and certify certain citizens for federal and state aid because of blindness was not opposed when it was learned that federal funds would not be made available to the state if it discriminated against optometrists in such certifications.

The Committee urged that physicians contact all members of the next legislature and urge them to support an appropriation to finance the hospital and medical care of indigents.

#### Liaison to the State Department of Health

Dr. J. O. Manier, a member of the Committee, filed a brief report stating, "The ever-increasing cordial relationship between the medical profession in Tennessee and the State Department of Public Health makes it quite unlikely that this Committee will have to be very active in the near future." The report commended the fine relations that exist between the State Department of Public Health and the profession.

#### Committee on Insurance

Due to the illness of the Chairman, Dr. Joe Gallagher, Dr. Kyle C. Copenhaver, a



member of the Committee, stated that the Committee was unable to make a report.

Dr. Copenhaver urged the Trustees to appoint a member to succeed Dr. Gallagher, recommending that the Chairman of the Committee be a Nashville physician.

#### Committee on Medical Education

The report compiled by Dr. W. C. Chaney, Chairman, observed that much of the work of the Committee in educating the people on medical matters is being done by the Executive Secretary and the Public Service Director. The Committee, however, has carefully reviewed a number of news releases dealing with medical subjects before they had been released to the public. The Committee recommends the continuance of providing the public with accurate and intelligible medical news.

(The Committee's report was read by Dr. R. B. Wood, a member, in the absence of Dr. W. C. Chaney, Chairman.)

#### Committee on Memoirs

Dr. C. R. Henry, Chairman of the Committee, reported that 47 members of the State Association had died during the past year. In his own inimitable way, these departed colleagues were eulogized, and the House of Delegates stood for one minute of silent prayer as a token of respect for the departed members.

(In the absence of Dr. Henry, the Chairman, the report was read by the Executive Secretary.)

#### Committee on Postgraduate Instruction

Dr. Carrol Turner read the report of this Committee, summarizing its activities during the past year. It was pointed out that considerable difficulty was experienced two years ago in securing an instructor for the present course in psychiatry. The course, taught by Dr. Ralph Townsend, has received both praise and criticism. The Committee attributed this to the peculiar nature of the course and anticipated such reactions.

The Committee is of the opinion that the present course has resulted in many physicians giving further attention to psychiatry and psychosomatic medicine. The Committee is of the further opinion that not all

physicians are interested or proficient in such a field of abstract thinking, but that more attention to the psychosomatic aspects of illness will be one profitable outgrowth of the present course.

A factual summary of the course follows:

A. Registration	898
B. Consultations	383
C. Number of teaching centers completed	36
D. Number of certificates issued to date	439

The present course in psychiatry as applied to the practice of medicine will be completed August 1.

#### Resolution

(Following the reading of this report, Dr. Turner introduced the following resolution: "RESOLVED: That the House of Delegates of the State Medical Association go on record as authorizing the Board of Trustees to appropriate an additional \$7,000 that is necessary to carry on the fine work of the Postgraduate Committee." The Speaker referred the resolution to the Reference Committee on Resolutions.)

#### Committee on Cancer

Dr. C. H. Heacock, Chairman, submitted the Committee report. During 1950, the Committee arranged a course of postgraduate instruction in cancer. This course did not conflict with the regular postgraduate course in psychiatry. Given first in West Tennessee last May, fifteen lectures were given in five centers by outstanding teachers from out of state. One hundred sixteen physicians attended. The East Tennessee course was given in October, 1950. Five teaching centers were chosen and ten lectures were given in each. The registration for this course was 162.

The above courses were without cost to the Tennessee State Medical Association. They were made possible by a grant from the American Cancer Society for Postgraduate Instruction. The Committee feels that these courses will encourage physicians to be more alert for the early detection and diagnosis of cancer, and similar courses are anticipated in the future.

### Committee on General Practice

Dr. C. B. Roberts, Chairman of the Committee, reported that the primary project of this Committee for the past year was the promotion of the essay contest. The report reveals that 3,355 high school students in Tennessee, from 484 separate schools, participated in the contest. As a result of the students' interest and research, it is estimated that thousands of additional people were reached as a result of the project.

The title, "The Individual—the Pillar of American Freedom," was chosen deliberately to avoid any slanting of the subject in favor of the well-known position of the medical profession on the issue of socialized medicine.

The report further detailed the meticulous planning and follow-up, together with adequate newspaper publicity, which contributed materially to the success of the project.

The Committee observed that a great variety of essay contests are flooding the schools of Tennessee, and the Committee has under consideration the possibility of changing from an essay contest to some other form of competition such as a poster contest, debate, or oratorical contest. (The House of Delegates left the matter of succeeding contests to the discretion of the Committee.)

(Dr. Roberts requested permission to read into the record an item from a recent issue of *Life Magazine*. Dr. Roberts then asked the unanimous consent of the House to hear a few remarks from Mr. Ed Bridges. Mr. Bridges then gave a recital of the interesting factors that surrounded the selection of the state winner of the essay contest, Miss Altha Jane Turner.)

### Emergency Medical Service Committee

Dr. James C. Gardner, Chairman, submitted a detailed report of the important activities of his Committee during the past year. Highlights of the report are as follows:

Through cooperation of physicians over the state, and particularly with the help of local county medical service committees, more than 5,000 inductees were given their physical examinations during the past year.

The average cost to the government for these voluntary services was less than \$2 per examination.

In September, members of the Committee attended the semi-annual meeting of the National Emergency Medical Service Committee in Chicago. This meeting was given over exclusively to the discussion of ways and means of furnishing the armed forces with necessary physician personnel. It was at this meeting that a draft of the President's proclamation, which is now known as Public Law 779, was made public. Public Law 779 provides for the registration, classification, and priority status of physicians, dentists, and veterinarians.

Since no organization had been set up which would be charged with the responsibility of carrying out the provisions of Public Law 779, it was the impression that the National Emergency Medical Service Committee, the State Emergency Medical Service Committees, and the Local Emergency Medical Service Committees would be charged with the responsibilities of

- A. Civil disaster planning, and
- B. Acting in the capacity of a procurement and assignment advisory committee.

Procurement and assignment functions, however, were later vested in a National Advisory Committee to Selective Service, now known as the Rusk Committee. The National Committee in turn, by delegated federal authority, has appointed committees in every state. These committees are not charged with the administration of the so-called "Doctor Draft" Law, but act in an advisory capacity to Selective Service.

The Committee's report then gave a detailed statement showing how the Committee has spark-plugged and stimulated the establishment of an adequate Civil Defense Program for the State of Tennessee. As a result of a series of conferences with the Governor and Civil Defense Authorities, a state-wide plan is now in the formative stage which, when activated at the local level, will provide the State of Tennessee with an excellent emergency organization for dealing with civilian disaster resulting from enemy attack.



The Committee urged that the Director of the Medical Service Division of all local Civil Defense organizations should be a doctor of medicine.

The report was concluded with a statement of a series of newspaper releases which were sent to 152 newspapers throughout the state designed to alert the public to life-saving methods in case of civilian disaster.

(Dr. Gardner interpolated his typed report with comments on the organization of the Civil Defense Committee. He also recited the fine publicity which the Civil Defense Organization of the State of New York has carried to the public.) Following his report, Dr. Gardner introduced the following resolution:

#### Resolution

"Be it therefore resolved that this House of Delegates (1951) of the Tennessee State Medical Association request the local medical societies to send delegations to all the local directors of civil defense and urgently request that the directors of that section of civil defense having to do with health and medical services be doctors of medicine. This is done in the interest of the health and welfare of the people of Tennessee and their protection in case of a war disaster." The resolution was referred to the Reference Committee on Resolutions.

The Speaker announced that the report of the Committee on Emergency Medical Service concluded the reports scheduled for the morning, and he announced that as soon as the House is recessed for lunch, the delegates from the three grand divisions of the State would meet in three separate caucuses and elect three members from each section to the Nominating Committee. He further requested that men who were elected report to the Speaker's table immediately after their election. The House was then recessed at twelve o'clock noon until one o'clock.

#### MONDAY AFTERNOON SESSION, APRIL 9, 1951

The meeting reconvened at 1:15 p.m., Dr. Charles C. Trabue, Speaker, presiding.

The Speaker called the House to order

and announced that the order of business would be the continuance of committee reports. These reports are abstracted as follows:

#### Committee on Industrial Health

Dr. Jean S. Felton, Chairman, submitted the report for his Committee. One of the projects of this Committee was the sponsorship of the first Tennessee Regional Conference on Industrial Health. Other organizations which participated and cooperated were the American Industrial Hygiene Association, the Tennessee Department of Public Health, the Tennessee Farm Bureau, the Tennessee Hospital Association, the Tennessee Manufacturers Association, the Tennessee State Nurses' Association, the American Federation of Labor, and the CIO.

The Conference, meeting for two days, centered around two subjects: (1) Can Industrial Medicine help meet the need of the American worker? (2) What services are available for a health and medical program in Tennessee?

The Conference was regarded as a great success and earned the following comment from the American Medical Association: "It is another example of how to get good public relations by increasing understanding, considering shared objectives and means of achieving them."

The Committee has also been instrumental in the promotion of the Tennessee Plan of voluntary prepaid health insurance. It reports that inquiries for detailed information on the Plan have been received from the national headquarters of various labor organizations and industrial groups.

(In the absence of Dr. Felton, the Executive Secretary read the Committee report.)

#### Committee on Prepaid Insurance

This report was made by Dr. N. S. Shofner, a member of the Executive Subcommittee. The history of the Tennessee Plan during the past twenty months was outlined. The rapid growth of the Tennessee Plan is attested by the fact that there are now 1,650 physicians in Tennessee who are serving the program. There are twenty-eight approved underwriters, including two Blue Cross Agencies, selling the Plan. The



total enrollment, as of December 31, 1950, was 259,368.

The Committee reported that the acceptance by the underwriters of the proposal of the Executive Secretary to contribute \$10,000 to a promotional fund is an important step in publicizing the Tennessee Plan to the public.

The Committee has under study and advisement the development of a companion policy which would provide higher fees and would offer full coverage to individuals with incomes up to \$3,500 and families with incomes up to \$5,000. The Committee was not ready to make a recommendation on this subject.

It was reported that the present fee schedule had been under study for several months by the Executive Subcommittee, in an attempt to eliminate some of the inequities of the present schedule. The results of the study, and the Executive Subcommittee's recommendations are now in the hands of competent insurance actuaries. When the actuarial study is completed, the Committee expects to make certain needed revisions in the present fee schedule.

The report concluded by observing that the Tennessee Plan is well established and that it has had a favorable acceptance by the public, the insurance industry, and the medical profession.

#### Liaison—United Mine Workers

Dr. Herbert Acuff, Chairman, mailed the report of his Committee which was read to the House. The Committee has worked closely with Dr. John Winebrenner, Area Medical Director of the United Mine Workers, and reported that a thoroughly satisfactory system of medical service to those eligible for benefits under the Health and Welfare Fund of the UMW is now in operation. No complaints, neither from physicians nor from patients, have been filed with respect to this program.

The Committee will continue to confer with the Area Medical Director on matters of policy, questions of ethics, and mutual consideration in order that the present program for the hospital and medical care of miners shall be effectively administered.

(In the absence of the Chairman, the

above report was read by the Executive Secretary.)

#### Advisory Committee to the Woman's Auxiliary

Dr. L. Alton Absher, Chairman, submitted his committee's report. The report stated that the Committee had acted in every capacity in which it had been called upon to function. The report commended the Woman's Auxiliary for its excellent year's work under Mrs. Park Niceley's leadership. It was also reported that a new auxiliary had been organized in Greene County.

#### Committee on Veterans' Affairs

Dr. H. H. Shoulders, Chairman, read the Committee's report. The report embraced a rather complete statement of events which led to the formation of the Committee on Veterans' Affairs of the Tennessee State Medical Association. The Committee observed that the present hospital program of the Veterans' Administration had been extended far beyond the present or immediately foreseeable needs of veterans. The present VA Hospital Program was described as being in conflict and in competition with the development of a system of civilian hospitals under the Hill-Burton Act. The Committee also cited certain findings of the Hoover Commission which substantiated the opinions of the Committee.

The report also criticized the Veterans Administration for conducting a vast program of publicity which, in the opinion of the Committee, is designed to further increase the demand for additional veterans' hospitals.

The report then gave a detailed history of the efforts that had been made to secure the adoption of a resolution by the House of Delegates of the AMA that was designed to correct alleged abuses within the present Hospital Program of the Veterans' Administration. Although the resolution was eventually defeated by the House of Delegates of the AMA, the Legislative Committee of the AMA is now charged with the responsibility of seeking ways and means of favorably altering the present VA Hospital Program.

In conclusion, the Committee reaffirmed its stand for individual freedom for veter-

ans and physicians, as well as sound policies of administering benefits to veterans.

#### Committee on Rural Health

The report of the Committee on Rural Health was read by its Chairman, Dr. W. N. Cook. It detailed the events which had led to the creation of the Rural Health Committee by the Board of Trustees six months earlier. The Committee was created for the purpose of cooperating with all other groups in the state of Tennessee who are interested in rural health problems. The Committee was organized in December, 1950, and many of its members attended the first National Conference on Rural Health, sponsored by the AMA, in Memphis.

The following program has been adopted for the Committee's work next year:

1. Cooperation with all other agencies in Tennessee which are interested in rural health, particularly the Tennessee Farm Bureau, the State Grange, the University Extension Department, County Agents, Home Demonstration Agents, and Parent-Teachers Associations
2. The promotion of the organization of local Health Councils
3. Supplementing the work of the Public Service Committee as it pertains to rural Tennessee
4. To promote the appointment of Rural Health Committees in all County Medical Societies
5. To promote the education of more physicians from rural areas
6. To encourage the extension of health services into rural communities
7. To promote postgraduate instruction for physicians in rural areas.

#### Grievance Committee

Dr. F. B. Bogart, Chairman, related that the Committee had had no matters referred to it for consideration, and that therefore they had no report to make.

(The State Grievance Committee acts as an appeals court from the decision of local society grievance committees.)

All of the above committee reports were referred to the Reference Committee on

Reports of Committees. The Speaker then asked for any supplemental committee reports and for any minority committee reports. None was offered.

#### Nominating Committee

The Speaker then announced the personnel of the Nominating Committee which was elected during the noon recess.

##### *West Tennessee*

Dr. D. H. James, Memphis

Dr. J. Paul Baird, Dyersburg

Dr. Julian K. Welch, Jr., Brownsville

##### *Middle Tennessee*

Dr. Ben Fowler, Nashville

Dr. James Loveless, Gallatin

Dr. J. Peery Sloan, Jamestown

##### *East Tennessee*

Dr. Hiram A. Laws, Jr., Chattanooga

Dr. John J. Killeffer, Chattanooga

Dr. John Leshner, Knoxville

#### Election of Councilors

The Speaker then announced that the next order of business was the election of the Councilors for the Second, Fourth, Sixth, Eighth and Tenth Districts. The Chair then called on the Chairman of the Nominating Committee for its nominations, which were as follows:

District 2—Dr. Kyle C. Copenhaver, Knoxville

District 4—Dr. Myrtle Lee Smith, Livingston

District 6—Dr. D. C. Seward, Nashville

District 8—Dr. Jere L. Crook, Jackson

District 10—Dr. Arthur Porter, Jr., Memphis

The Chair asked for nominations from the floor and none was made. It was then moved that the nominations be closed which was severally seconded and carried unanimously. The nominees submitted by the Nominating Committee were duly and unanimously elected.

#### Report of Reference Committee on Reports of Officers

The Speaker then announced that the next order of business was the report of the Reference Committee on Reports of Officers. Dr. John R. Thompson, Chairman of the Reference Committee, gave the Committee's report. The Committee recom-

mended the acceptance and adoption of the reports of all the officers, which are abstracted above. The Committee, in addition to recommending the adoption of the officers' reports, commended the following reports:

1. The report of the Secretary-Editor.
2. The report of the Board of Trustees.
3. The report of the Executive Secretary.

Dr. Thompson then moved the adoption of the report of the Committee as a whole, which was severally seconded, put to a vote, and carried unanimously.

#### Report of Reference Committee on Reports of Committees

The Speaker then announced that the next order of business would be a report from the Reference Committee on Reports of Committees. Dr. R. N. Buchanan, Jr., the Chairman, requested that they report separately upon the twenty committee reports which their committee had reviewed. These committee reports are briefly abstracted above. The Reference Committee, in addition to recommending the adoption of the reports, made the following comments on certain committee reports:

- A. The Committee commended the work of the Committee on Scientific Work.
- B. It commended the positive, constructive work of the Public Service Committee and urged that the Committee's work be continued toward the achieving of the full program embodied in the Tennessee Ten. Dr. John B. Youmans, in commenting on a part of the report of the Public Service Committee, stated that Vanderbilt Medical School was in agreement with the Public Service Committee's objective of having courses in medical ethics made an integral part of medical school curricula. Dr. Youmans further stated that such a program was in operation at Vanderbilt Medical School.

- C. The Reference Committee, in commenting upon the report of the Committee on Hospitals, recommended that the Committee give serious attention to the present practices of certain hospitals which are invading the

fields of private medical practice, particularly in anesthesia, radiology and pathology.

- D. The Reference Committee commended the report of the Legislative and Public Policy Committee.
- E. The Reference Committee suggested and recommended to the Board of Trustees that the Insurance Committee become more active and that its personnel be completed at the earliest possible moment by the Board of Trustees.
- F. The Reference Committee commended the report of the Committee on General Practice, suggesting that the Committee be given the prerogative of determining the type of contest in the future.
- C. The Reference Committee commended the report of the Committee on Emergency Medical Service and suggested that the Emergency Medical Service Committee and the Postgraduate Committee give consideration to conducting courses on emergency medical care.

Following the recommendation for the adoption of the several committee reports, Dr. Buchanan then moved the adoption of the report of the Reference Committee as a whole. This motion was duly seconded and unanimously carried.

#### Report of Reference Committee on Amendments

The Speaker then called for a report of the Reference Committee on Amendments. Dr. N. S. Shofner, Nashville, Chairman of the Committee, stated that the Committee had three amendments to the By-laws and one amendment to the Constitution which had been referred to it. The Speaker pointed out that the Committee's recommendations on the amendments to the By-laws could be reported but that the actual adoption of the amendments would have to wait until the second day.

Dr. Shofner then read the amendment introduced by Dr. Zemp which amended Chapter XIII of the By-laws and deals with the method by which the By-laws of the Association may be amended.



The Committee recommended the adoption of this amendment.

The next amendment which the Committee recommended for adoption was the amendment of Section 3, Chapter XII, introduced by Dr. Penn dealing with the subject of permitting local societies to make the payment of AMA dues a condition of membership in that society. The Committee recommended the adoption of this amendment.

Dr. Shofner then reported that the Reference Committee desired to amend an amendment introduced by Dr. Daugh W. Smith to Section 2, Chapter IV, of the By-laws by adding the words "at least" to the sentence reading, "Each component society holding a charter from this Association, which has made its annual report and paid its assessment as provided in this Constitution and By-laws, shall be entitled to (at least) one delegate." The Committee recommended the adoption of this amendment as amended.

The Chairman then reported out a proposed amendment to the Constitution introduced by Dr. Arthur Porter which proposed adding a Vice-Speaker to the list of elected officers of the Association.

The Speaker again called the attention of the House to the fact that all of the above amendments would be voted upon during the Wednesday session, except the Constitutional Amendment which would lie over one year.

#### Report of Reference Committee on Resolutions

The Speaker then called attention to the fact that by typographical error the printed agenda did not call for a report of the Reference Committee on Resolutions. It was then moved, seconded, and passed that the order be changed in part to hear the report of this Committee. Dr. R. B. Wood, Knoxville, Chairman, then reported the following resolutions for adoption:

A. RESOLVED: That this House of Delegates of the Tennessee State Medical Association request the local medical societies to send delegations to all local directors of civil defense and urgently request that the local health directors be medical doctors either in

private practice or in public health work. This is done in the interest of the health and welfare of the people of Tennessee and their protection in case of a war disaster.

The Chairman moved the adoption of the resolution. The motion was duly seconded and was carried unanimously.

B. RESOLVED: That the House of Delegates of the Tennessee State Medical Association go on record as authorizing the Board of Trustees to appropriate the addition of \$7,000 that is necessary to carry on the fine work of the Postgraduate Committee.

Dr. Wood then commented that it was the opinion of the Reference Committee that since this resolution involved finances, that the matter be referred to the Board of Trustees for study and recommendation. Dr. Wood then moved that the resolution be referred to the Board of Trustees. Dr. Shofner then offered an amendment to the resolution to the effect that the House of Delegates recommend to the Board of Trustees that they provide the financial assistance called for if they feel that the budget would permit it. The resolution as amended was then discussed at considerable length by Doctors R. B. Wood, N. S. Shofner, W. A. White, Carrol C. Turner, R. C. Kimbrough, and E. G. Kelly.

As a result of the several discussions, Dr. Wood, Chairman of the Reference Committee, requested permission to withdraw the Committee's recommendation for the adoption of the resolution, together with the amendments that had been offered thereto. Dr. Wood then stated that the Reference Committee on Resolutions recommended the adoption of a resolution by Dr. Carrol Turner which authorized the Board of Trustees to appropriate \$7,000 to carry on the work of the Postgraduate Committee. The motion was seconded, and was discussed by Doctors Julian Welch, Daugh W. Smith, Kyle Copenhaver, Carrol Turner, Hunter Steadman, W. D. Stinson, and A. M. Patterson.

During the discussion Dr. D. W. Smith presented the following resolution: "That this House of Delegates authorize and instruct the Board of Trustees to appoint a

committee, to be known as the Committee on Postgraduate Extension Services, and that said Committee be charged with the responsibility of working in cooperation with the University of Tennessee, Vanderbilt University, the Knoxville Academy of Medicine, and the Chattanooga-Hamilton County Medical Society, to continue postgraduate instruction by utilizing the talent in those areas."

Dr. Smith stated that the above resolution would be submitted as a motion later in the session. Dr. Wood then requested permission to withdraw his original motion and yielded the floor to Dr. Smith who referred back to his original resolution calling for the creation of a Committee on Postgraduate Extension Service, and moved its adoption. The motion was seconded by Dr. L. C. Jackson. The motion was then discussed by Doctors A. M. Patterson of Chattanooga, Ben Fowler of Nashville, R. A. Broady of Sevierville, C. B. Roberts of Sparta, C. H. Heacock of Memphis, John Youmans of Nashville, and Hunter Steadman of Henderson.

Dr. Hunter Steadman moved that Dr. Smith's motion to create a Postgraduate Extension Service Committee be tabled. The motion was seconded by Dr. Carol Turner of Memphis. The question on the motion to table was put and carried.

Dr. R. B. Wood then moved that the House of Delegates go on record as recommending to the Board of Trustees that they appropriate the sum of \$7,000 for Postgraduate work next year. The motion was severally seconded. Following discussions of the amount, Dr. Wood then amended his motion to read \$10,000 instead of \$7,000. Dr. Patterson then moved to amend Dr. Wood's motion to provide that the Board of Trustees appropriate up to \$20,000 during the next two years to support the Postgraduate Program. The amendment was put to a vote and carried unanimously.

The question was then put on the main motion as amended and it was carried unanimously.

#### Introduction of Guests

The Speaker then called on President Monger to introduce Dr. Wood from

Georgia, a fraternal delegate from the Medical Association of Georgia. The Chair then asked Dr. Shoulders to introduce his guest, Dr. A. J. McCrary of Green Bay, Wisconsin.

#### Report of Reference Committee on GP Award

The Speaker then declared that the next order of business was the report of the Reference Committee on the Outstanding General Practitioner Award for the State of Tennessee for the Year 1951. Following preliminary remarks, Dr. Roberts, as Chairman, submitted the names of Dr. Tom Moore of Algood, Dr. C. D. LeQuire of Maryville, and Dr. R. C. Kimbrough of Madisonville. The members of the House balloted secretly for the three nominees, and it was subsequently announced that Dr. Tom Moore of Algood had been elected as the Outstanding General Practitioner by a majority vote.

#### Introduction of Additional Resolutions and Amendments

The Speaker then announced that the next order of business would be the introduction of additional amendments and resolutions. Dr. Daugh W. Smith presented a resolution in appreciation of the services of Miss Willard Batey and Miss Margaret Rawls, employees in the Headquarters Office, for their faithful and devoted service to the Association. The resolution was referred to the Reference Committee on Resolutions.

Dr. Herbert L. Pope introduced a resolution to the effect that "It is the sense of this Association that we request the Governor of the State of Tennessee to appoint a commission to study the problem of alcoholism in Tennessee, with the cooperation of the State Association." The resolution was referred to the Reference Committee on Resolutions.

Dr. C. B. Roberts introduced a resolution calling for a study and formulation of a postgraduate course which may be brought before the House of Delegates at its next meeting, looking forward to the possibility of its adoption at the end of the present postgraduate course. This resolution was referred to the Reference Committee on Resolutions.



Dr. Smith then introduced an amendment to Dr. Robert's amendment to provide that the committee referred to in the Roberts resolution be appointed by the Board of Trustees, and that it cooperate with the groups mentioned in Dr. Smith's original resolution, namely, Vanderbilt Medical School, the Medical School of the University of Tennessee, the Knoxville Academy of Medicine, and the Chattanooga-Hamilton County Medical Society. Dr. Smith's amendment was likewise referred to the Reference Committee on Resolutions.

Dr. J. Peery Sloan arose to a point of personal privilege and read a poem, "with apologies to Kipling," in tribute to Dr. Tom Moore, who had just been declared elected as the Outstanding General Practitioner.

The House was then adjourned until nine o'clock Wednesday morning.

#### WEDNESDAY MORNING SESSION, APRIL 11, 1951

The meeting reconvened at 9:15 a.m., Dr. C. C. Trabue, Speaker, presiding. Dr. Zemp, Chairman of the Credentials Committee declared that a quorum was present.

#### Unfinished and New Business

The Speaker then stated that the next order of business was the completion of unfinished business from Monday's session, including the introduction of further resolutions and amendments.

Dr. H. L. Monroe, Erwin, introduced the following resolution: "RESOLVED: By this House of Delegates, that if and when any component society fails to elect or certify its delegate or delegates to the Executive Secretary thirty days prior to the annual session, such failure shall be reported to the Councilor of the district in which said society is located; and be it further

"RESOLVED: That the Councilor shall visit said society before the annual meeting and endeavor to secure compliance with provisions of the By-laws pertaining to the election and certification of delegates."

The Speaker referred this resolution to the Reference Committee on Resolutions.

Dr. Carrol Turner, Memphis, informed the House that the Postgraduate Committee had passed a resolution "making its or-

ganization available to the Civil Defense Committee for administering a program of instruction in civilian defense for doctors." The Speaker referred the resolution to the Reference Committee on Resolutions.

Dr. Arthur J. Porter, Jr., Memphis, introduced the following amendment to Section 1, Article VIII, of the Constitution: "The officers of the Association shall be a President, a President-elect, a Vice-President for each of the three grand divisions of the State, a Secretary-Editor, five Trustees, ten Councilors, a Speaker of the House of Delegates, and a Vice-Speaker of the House of Delegates." The Speaker reminded Dr. Porter that the same amendment was read on Monday and was in the hands of the Reference Committee on Amendments, and that it would be reported out of that committee later.

Dr. Daugh W. Smith, Nashville, introduced a resolution which stated the position of the Board of Trustees in an action of a special meeting of the Board on Monday afternoon, which is as follows:

"It is our opinion (the Board of Trustees) and recommendation to the House that the program (postgraduate instruction) be continued, with the following recommendations:

"1—That the administrative functions heretofore performed by field directors be assigned to the personnel of the headquarters staff of the Association.

"2—That the increased registration fee for the course be endorsed.

"It is our opinion that this program can be continued under the above conditions, and a sound financial position maintained by the Association."

This action by the Board of Trustees was signed by Doctors Trabue, Kelly, Shofner, and Smith. Dr. Smith then moved the adoption of this resolution. The Speaker referred the resolution to the Reference Committee on Resolutions.

Dr. D. H. James of Memphis introduced the following resolution: "That a secret committee be appointed by the Speaker of the House, of three members, one from each grand division of the State, to select the outstanding general practitioner of the



year. The decision of the committee to be final. The winner to be announced by the President at President's Night. The Speaker to notify the winner." The resolution was referred to the Reference Committee on Resolutions.

Dr. D. H. James then introduced another resolution as follows: "It is recommended that Section 2, Chapter V of the By-laws be changed to read as follows: 'On the first day of the annual session the Speaker of the House shall appoint three temporary chairmen to preside over the assembled delegates of each of the three divisions of the State, until a chairman is elected to conduct the procedure of selection of three delegates from each of their respective divisions, to serve as a Committee on Nominations, no two of whom shall be from the same county'." The amendment was referred to the Reference Committee on Amendments. The Speaker, however, advised Dr. James that the amendment would have to lie on the table until next year since it is an amendment to the By-laws.

Dr. R. H. Hutcheson, Franklin, introduced the following resolution, which was preceded by four whereases: "RESOLVED: By the House of Delegates of the Tennessee Medical Association, that this House go on record as petitioning the Tennessee congressmen and senators to introduce and work for the successful passage of federal legislation that will bring under the control of the Narcotic Bureau of the Treasury Department, by amending the Harrison Narcotic Act, all of that class of drugs made from salts of barbituric acid." The Speaker referred this resolution to the Reference Committee on Resolutions.

The Speaker then called for any supplementary reports from committees or officers. None was submitted.

#### Report of Reference Committee on Resolutions

The Speaker called for the report of the Reference Committee on Resolutions. Dr. R. B. Wood, Chairman, reported out the following resolutions:

"RESOLVED: That this House of Delegates of the Tennessee State Medical Association request the Board of Trustees to appoint a committee to restudy the post-

graduate education program and, if feasible, unite the program under a single committee, which shall proceed with an outline of study which will be presented to this House for its consideration at its next meeting." (Robert's resolution.)

Dr. Wood moved the adoption of the resolution. It was duly seconded and carried unanimously. Dr. Wood then reported out the following resolution:

"That we go on record requesting the Governor to appoint a commission to study the whole problem (of alcoholism), and to report jointly to the Governor and to this body the result of its study, with recommendations as to the solution of this problem." (Pope resolution.)

Dr. Wood then moved the adoption of this resolution. It was duly seconded and carried unanimously. Dr. Wood then reported out the following resolution:

"RESOLVED: By this House of Delegates, that if and when any component county society fails to elect or certify its delegate or delegates to the Executive Secretary at least thirty days prior to the annual session, such failure shall be reported to the Councilor of the district in which said society is located; and be it further

"RESOLVED: That the Councilor shall visit said society before the annual meeting, and endeavor to secure compliance with the provision of the By-laws pertaining to the election and certification of the delegates." (Monroe resolution.)

Dr. Wood moved the adoption of the resolution, which was duly seconded and carried unanimously. Dr. Wood then reported out the following resolution:

"RESOLVED: That a secret committee be appointed by the Speaker of the House, of three members, one from each grand division of the State, to select the outstanding general practitioner of the year. The decision of the committee to be final. The winner to be announced by the President at President's Night, and the Speaker to notify the winner." (Introduced by Dr. H. L. Monroe.)

Dr. Wood moved the adoption of the resolution, which was seconded by Dr. Leshner. The resolution was then discussed by Doctors E. R. Zemp, D. C. Seward, A. M.

Patterson, Dale Brown, R. B. Wood, D. H. James, H. L. Monroe, R. C. Kimbrough, and others.

Dr. Zemp then moved that the resolution be amended by striking out the words "The decision of the committee to be final," and that the committee submit three names to the House as nominees. Dr. D. C. Seward then moved to amend Dr. Zemp's amendment to provide that the House vote on the three nominees after their qualifications have been presented. Dr. Seward's amendment was put to a vote and unanimously carried.

The Chair then put the question on Dr. Zemp's amendment providing that the Committee on the Outstanding General Practitioner Award present the names of three men as nominees for election by the House. The motion was then seconded and carried. The Speaker then declared that the original resolution by Dr. Monroe, as amended by Dr. Zemp's amendment, was in order. The motion was put on the original question and was carried unanimously.

Dr. Wood then reported out the resolution introduced by Dr. Smith commending Miss Willard Batey and Miss Margaret Rawls, and moved its adoption. Dr. Zemp then moved the resolution be approved by a rising vote. The resolution was adopted unanimously.

Dr. Wood then reported out the following resolution introduced by Dr. R. H. Hutcheson: "RESOLVED: By the House of Delegates of the Tennessee Medical Association that this House go on record as petitioning the Tennessee congressmen and senators to introduce and work for the successful passage of federal legislation that will bring under the control of the Narcotic Bureau of the Treasury Department, by amending the Harrison Narcotic Act, all of that class of drugs made from salts of barbituric acid." Dr. Wood moved its adoption, which was seconded by Dr. Qualls. The question was put and the resolution was adopted unanimously.

#### Report of Reference Committee on Amendments

The Speaker then called for a report of the Reference Committee on Amendments to the Constitution and By-laws. Dr. C. M.

Hamilton, acting as Chairman Pro Tem, reported out the following amendment to Section 2, Chapter IX of the By-laws, which reads as follows:

"Each component society shall be entitled to send to the House of Delegates each year one delegate for every fifty members and one for every fraction thereof, based upon the number of members in the component society in good standing as of December 1 of the year preceding the meeting of the House. Each component society holding a charter from the Association, which has made its annual report and paid its assessment as provided in the Constitution and By-laws, shall be entitled to at least one delegate." (Dr. Smith's amendment.)

Dr. Hamilton moved the adoption of the amendment. Dr. Smith called attention to a typographical error, stating that the amendment was to Section 2, Chapter IV (rather than Chapter IX). He moved that the words "at least," occurring in the last line of the above amendment, be deleted. The motion to delete was seconded by Dr. Monroe, put to a vote and carried unanimously. The Speaker then put the question on the original amendment as offered by Dr. Smith. The amendment was adopted unanimously.

Dr. Hamilton then reported out the following resolution: "I move that Section 3, Chapter XII of the By-laws of the Tennessee State Medical Association be amended by adding the following sentences to said Section: 'Each component society of this Association may amend its constitution and/or By-laws to provide that the payment of dues to the American Medical Association shall be a condition of active membership in that society'."

The move to adopt was seconded by Dr. R. B. Wood, and the amendment was adopted by unanimous vote.

Dr. Hamilton then reported out the following resolution amending Chapter XIII of the By-laws to read as follows: "In order to amend the By-laws of this Association, a two-thirds majority of the members present and voting shall be necessary. Such amendment, after having been filed



in writing, shall lie over one day. Any By-law may be suspended during the pending meeting by unanimous consent." (The Zemp resolution.)

Dr. Hamilton moved its adoption. Dr. Zemp seconded, and the amendment was adopted unanimously.

Dr. Hamilton then reported out an amendment to Section 2, Chapter V of the By-laws as follows:

"On the first day of the annual session the Speaker of the House shall appoint three temporary chairmen to preside over the assembled delegates of each of the three divisions of the State, until a chairman is elected to conduct the procedure or selecting three delegates from each of the three respective divisions, to serve as a committee on nominations, no two of whom shall be from the same county."

Dr. Hamilton moved the adoption of the amendment, but the Speaker ruled that since the amendment was only introduced at the morning session, that it would have to lie on the table until next year.

Dr. Hamilton then reported out the following amendment, amending Section 1, Article VIII of the Constitution as follows: "The officers of the Association shall be a President, a President-elect, a Vice-President for each of the three grand divisions of the State, a Secretary-Editor, five Trustees, ten Councilors, a Speaker of the House of Delegates, and Vice Speaker of the House of Delegates."

Dr. Hamilton moved the adoption of the amendment, but the Speaker observed that it was introduced at this session and it would be necessary for it to lie on the table until next year. The last amendment completed the report of the Reference Committee on Amendments.

#### Supplemental Report of Reference Committee on Resolutions

The Speaker then called for a supplementary report from the Reference Committee on Resolutions.

Dr. Wood, Chairman, reported out the resolution introduced by Dr. Smith which called for the endorsement of a resolution adopted by the Board of Trustees in extraordinary session, pertaining to the transfer

of the administrative functions of the present Field Director to the personnel of the Headquarters Office. Dr. Wood moved that the House approve and endorse the resolution of the Board of Trustees. It was severally seconded. The motion was then discussed by Doctors Smith, L. E. Dyer, H. L. Monroe, A. M. Patterson, R. H. Hutcheson, John B. Youmans, Carrol Turner and others.

The Speaker then put the question on the adoption of Dr. Wood's motion, and the motion was lost.

#### Report of Nominating Committee and Election of Officers

The Speaker then called for a report of the Nominating Committee. Dr. D. H. James, Chairman, placed the names of Dr. B. H. Woodard, of Springhill; Dr. Thayer Wilson, of Carthage, and Dr. D. W. Smith, of Nashville, in nomination for President-elect. The vote was taken by ballot, and Dr. Daugh W. Smith, of Nashville, was declared elected.

Dr. James then placed the name of Dr. Charles C. Trabue, IV, of Nashville, in nomination for re-election as Speaker of the House. The motion to close the nomination was unanimously carried and Dr. Trabue was elected by acclamation.

Dr. James then submitted the name of Dr. R. H. Kampmeier, Nashville, for the office of Secretary-Editor. A motion to close the nominations and to elect Dr. Kampmeier was unanimously carried.

Dr. James then submitted the name of Dr. Carrol C. Turner of Memphis, as a candidate for Trustee from West Tennessee. The nominations were closed by motion and Dr. Turner was unanimously elected.

Dr. James then placed in nomination the name of Dr. Leland Johnson, of Jackson, as Vice-President from West Tennessee. The Speaker called attention to the fact that a candidate for office must be in attendance at the meeting. Dr. Johnson was not present and was not eligible for election. Dr. Thompson of Jackson then placed in nomination the name of Dr. Julian K. Welch of Brownsville. By motion the nominations were closed and Dr. Welch was unanimously elected.



Dr. James then placed in nomination the name of Dr. C. B. Roberts, of Sparta, as Vice-President of Middle Tennessee. (The Speaker humorously remarked, "I know Dr. Roberts is present.") A motion to close the nominations was carried and Dr. Roberts was unanimously elected.

Dr. James then placed the name of Dr. Julian Sullivan as Vice-President of East Tennessee, but the nomination was lost since Dr. Sullivan was not in attendance.

Dr. Leshner of Knoxville then nominated Dr. Louis A. Killeffer, of Harriman. An unidentified member placed the name of Dr. John Lillard, of Benton, in nomination. The nominations were then closed, a vote was taken, and the teller announced that Dr. Killeffer had been duly elected Vice-President of East Tennessee.

Dr. James then placed the name of Dr. W. C. Chaney, of Memphis, in nomination as Delegate to the AMA, and Dr. Harold Boyd of Memphis as alternate. The nominations were then closed by motion, severally seconded, and Doctors Chaney and Boyd were declared unanimously elected.

Dr. James then placed in nomination the names of Dr. C. M. Hamilton of Nashville, as Delegate to the AMA, and Dr. R. H. Kampmeier of Nashville, alternate. The nominations were closed by motion, and Doctors Hamilton and Kampmeier were unanimously elected.

Dr. James then placed in nomination the names of Dr. Webb Key of Memphis, Dr. Malcolm Tipton of Union City, and Dr. Jack Armstrong of Somerville, as nominees to the Governor for appointment to the Public Health Council from West Tennessee. The nominations were closed by motion and the nominees were duly and unanimously elected.

Dr. James then placed in nomination the names of Dr. R. N. Buchanan, Dr. J. B. Black of Murfreesboro, and Dr. J. A. Loveless of Gallatin, as nominees for the Public Health Council from Middle Tennessee. The nominations were closed by motion and the nominees were then duly elected.

Dr. James then placed in nomination the names of Dr. R. C. Kimbrough of Madisonville, Dr. S. C. Fain of Jefferson City, and Dr. H. L. Monroe of Erwin, as nominees

for the Public Health Council of East Tennessee. A motion to close the nominations and elect the nominees was unanimously carried.

Dr. James then placed in nomination the names of Doctors Carrol Long, of Johnson City, Joe Raulston of Fountain City, William Sheridan of Chattanooga, Roy Aperison of Athens, Thurman Shipley of Cookeville, W. W. Wilkerson, Jr., of Nashville, Leland M. Johnson of Jackson, and Webb Key of Memphis, in nomination for appointment by the Governor to the Board of Trustees of the state tuberculosis hospitals. By motion the nominations were closed and the nominees were duly elected.

#### Nominating Committee Commended

Dr. James, as Chairman, commended his Committee for its conscientious work, and the Nominating Committee, in turn, was commended by the Speaker for its services.

Dr. Milton Adams, of Memphis, requested the unanimous consent of the House to secure instructions about the disposition of the citation which had been prepared for Dr. W. M. Hardy, former Secretary-Editor. Upon motion duly made and seconded, Dr. Adams was instructed to place the citation in the archives of the Tennessee State Medical Association.

#### Knoxville Next Meeting Place

The Speaker then announced that the next order of business would be the selection of the place of the next annual meeting. Dr. E. R. Zemp invited the Association to hold its next meeting in Knoxville, with the Knoxville Academy of Medicine as host. Dr. Dana Nance, of Oak Ridge, extended an invitation, on behalf of the Roane County Medical Society, that the Association meet in Oak Ridge. The Speaker then called for a vote and declared that the majority favored accepting the invitation of the Knoxville Academy of Medicine.

Dr. H. B. Everett moved that the House express its appreciation to the Nashville Academy for their entertainment during the meeting. The motion was seconded and unanimously adopted.

#### New Officers Introduced

The Speaker then appointed a committee composed of Dr. Henry Kirby-Smith, Dr.

D. H. James, and Dr. R. B. Wood to escort the new officers and introduce them to the Scientific Assembly.

The Speaker then thanked the House

for its careful attention to business matters and for its cooperation.

The meeting adjourned sine die at 11:15 a.m.

## ABSTRACT OF MINUTES OF A MEETING OF THE BOARD OF TRUSTEES

Tennessee State Medical Association, April 11, 1951

The Board of Trustees of the Tennessee State Medical Association held its regular annual meeting with the following members present:

Daugh W. Smith—Chairman-Treasurer

Charles C. Trabue, IV

A. M. Patterson

Carrol C. Turner

Ralph H. Monger

Others present were:

R. H. Kampmeier, Secretary-Editor

V. O. Foster, Executive Secretary

E. G. Kelly, President

Ed Bridges, Public Service Director

The meeting was held at the Maxwell House in Nashville on April 11, 1951. The following actions are brief abstracts of this meeting. (All members of the Board will receive a copy of the full stenographic record as soon as they are available.)

Following a lengthy discussion of the operation of the headquarters office and particularly the work load as shared by Mr. V. O. Foster, Executive Secretary, and Mr. Ed Bridges, Public Service Director, Dr. Daugh W. Smith moved that Mr. Bridges be allowed more freedom to travel over the state and that his job be concerned exclusively with public service activities except in instances agreed upon by Mr. Bridges and Mr. Foster. The motion was carried.

Following a discussion of advertising income from the JOURNAL, Dr. Daugh Smith moved that the Executive Secretary inquire about advertising rates of other medical journals in this immediate southeast area. The motion carried.

Dr. Kampmeier suggested that the size of the JOURNAL should be increased by possibly one or two signatures (four pages). Dr. Smith moved that the decision as to the size of the JOURNAL be left to Dr. Kampmeier's discretion. The motion carried.

Dr. Carrol Turner advised the Board that members of the Woman's Auxiliary had requested that reprints of the Woman's Auxiliary Page of the JOURNAL be mailed to members of the Auxiliary. Following a discussion of this matter, Dr. Turner moved that reprints of the JOURNAL page be mailed quarterly to all members of the Auxiliary at a cost to the Association of \$148.40 per year. The motion carried.

The Board authorized the assignment of Miss Margaret Rawls as the personal secretary to Mr. Bridges. It was moved, seconded, and carried, that the salary of Miss Rawls be increased from \$150 to \$175 per month.

The entire budget was carefully reviewed, item by item, in order to see what possible savings could be effected. Various members of the Board pointed out that substantial savings will be effected, totalling approximately \$3,175.

A motion was duly made, seconded, and carried that the Board create a committee consisting of Doctors Kelly, Turner, and Colbert to investigate the possibility of correlating or combining the Committees on Medical Education and Postgraduate Instruction. (Robert's resolution.)

Dr. Kampmeier reported that speakers representing certain specialty groups were committed to a place on the scientific program by officers of these specialty groups without his being consulted. He requested approval of the Board of Trustees of the procedure of not permitting speakers from specialty groups to take part in the scientific program without the prior approval of Dr. Kampmeier as Chairman of the Committee on Scientific Work. The Board was in hearty agreement with Dr. Kampmeier's position.

Following a discussion of the practice of medicine by various hospitals, particularly



in the fields of pathology, radiology, anesthesiology, and laboratory procedures, Dr. Trabue moved that the Secretary write the Chairman of the Committee on Hospitals expressing the sense of the Board that this committee should look into these matters. Dr. Patterson called attention to the fact that the name "Committee on State Hospitals" is incorrect. It should be "Committee on Hospitals," as stated in the By-laws.

The Board of Trustees then took up the matter of committee appointments, which consumed the remainder of the afternoon. All committee appointments have been completed, with the exception of one member of the Insurance Committee. This appointment was left to the discretion of the Nashville members of the Board for subsequent action. The standing and special committees of the Association, as well as a list of all officers, can be found on pages 217 and 218 of this issue of the JOURNAL.

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**Pregnancy and Pulmonary Tuberculosis. Turner, H. M. Lancet 1:697, 1950.**

Although it was originally believed that pregnancy in a tuberculous woman was a disaster, a gradual change of medical opinion has occurred since 1930. The author reports the results of observations of 718 pregnancies in 534 different tuberculous women.

Pregnancies have been grouped in four categories: (1) pregnancy in a woman known to have active tuberculosis at the time of conception; (2) pregnancy in a woman known to have quiescent tuberculosis at the time of conception; (3) tuberculosis first diagnosed during pregnancy; (4) tuberculosis first diagnosed within a year of the termination of pregnancy. In groups (1) and (2), survival is dated from the start of the pregnancy. In groups (3) and (4), survival is dated from the diagnosis of tuberculosis.

In groups (1) and (3), labor tended to begin early. The chances of spontaneous abortion or stillbirth seem to be rather greater when the tuberculosis is active than when it is quiescent.

The survival rate ten years after pregnancy with quiescent tuberculosis is 86%, a figure which appears to exclude any possibility of the prognosis of quiescent tuberculosis being adversely affected by pregnancy. Among 220 pregnancies in which tuberculosis was quiescent, there were ten recrudescences during pregnancy and 20 recrudescences within a year of delivery. The only death in this group within a year of start of pregnancy was where an acute dissemination occurred at the ninth week of pregnancy. It thus appears that the woman with quiescent tuberculosis who becomes pregnant or wishes to become pregnant may be reassured and no question of terminating the pregnancy should arise.

In the three groups in which the tuberculosis was active, the survival figure at the end of ten years was lowest where tuberculosis was only diagnosed after pregnancy (43%), next lowest where tuberculosis was diagnosed during pregnancy

(52%), and highest where pregnancy occurred in a known case of active tuberculosis (55%). The group in which tuberculosis was diagnosed before conception is likely to contain a smaller proportion of acute or subacute cases and a greater proportion of stabilized chronic cases than either of the other two groups. As between the other two groups, the advantage may be expected to be with the group diagnosed during pregnancy as this contains a smaller proportion of late diagnoses. However, judged by any standards, survival rates between 43% and 55% at the end of ten years are very good for cases of active tuberculosis at the outset.

There is no evidence in this series that pregnancy adversely affects the group prognosis in active tuberculosis. The author feels that in a minority, pregnancy is a direct cause of deterioration. In another (and probably a larger) minority, the effects of pregnancy, physically and psychologically are beneficial. In the majority pregnancy has no obvious influence on the tuberculous process.

The series includes 30 cases of spontaneous abortion and 25 cases of induced abortion in patients with active tuberculosis. There is a survival rate of 81% five years after spontaneous abortion and 61% after induced abortion. The survival rate five years after pregnancy with active tuberculosis is 64 per cent. The advantage in the spontaneous abortion group is obvious. Numerous spontaneous abortions are due to low gonadotrophin or an excess of estrogen. Hence, the favorable survival rates in tuberculosis associated with spontaneous abortion can be explained endocrinologically. If this theory is correct, little advantage is to be expected from terminating pregnancy in a woman with active pulmonary tuberculosis after the end of the first trimester. Similarly, the modern practice of administering gonadotrophic substances to counteract a tendency to early abortion may carry some risk of reactivating a quiescent tuberculous infection.

(Abstracted by Milton Smith Lewis, M.D., Nashville, Tennessee.)



## VANDERBILT UNIVERSITY HOSPITAL CLINICO-PATHOLOGICAL CONFERENCE\*

This 63-year-old white man was first admitted to Vanderbilt University Hospital in 1942.

In 1917, on a routine physical examination for the army, he was found to have mild hypertension and an albuminuria. His hypertension remained asymptomatic until 1942 when he had an attack of dizziness. The albuminuria was known to have persisted constantly since 1917. During this period urine specimens were known to contain only an occasional white blood cell and an occasional cast. His blood pressure prior to 1942 varied between 160 and 170 mm. systolic and about 90 mm. diastolic. His pulse rate was never elevated.

In 1942 his blood pressure on a routine examination, again by the army, was found to be 220/120. He noted mild exertional dyspnea in 1942 but no other symptoms.

In 1938 he had a bout of colicky right flank pain with hematuria. A calculus was removed from his right ureter. In 1939 he had a similar episode on the left side. Pyelograms at this time were reported as negative. During 1942 he had noted nocturia (1-2 times) for the first time. He entered the hospital in late 1942 for a diagnostic study of his hypertension.

On admission in 1942 his blood pressure was 195/105 bilaterally. The retinal vessels were tortuous and showed A-V nicking, but there were no hemorrhages or exudates. The heart was slightly enlarged to the left. The heart rhythm and rate were normal. A soft systolic blowing murmur was heard over the apex and another over the aortic area. One observer questioned the presence of a diastolic murmur over the aortic area. The liver was palpable 1 finger-breadth below the costal margin. The prostate was symmetrically enlarged without nodules. Physical examination was otherwise non-revealing. Venous pressure and vital capacity were normal. Two urinalyses in the hospital showed a concentration to 1.020 with a 1 to 2 plus albuminuria. A few white and red cells were found in the urine. Examination of the blood revealed normal blood counts. The NPN was 39 mgm.%. PSP excretion test showed a total excretion of 40% in two hours. Examination of the gastrointestinal tract, the gallbladder, and the chest by X-ray showed no abnormality. Pyelograms were done which showed blunting of the minor calyces on both sides.

The patient was readmitted to the hospital in March, 1948. He had been fairly well since his last admission. Eight hours prior to this second admission he had had a sudden bout of violent coughing with the expectoration of thick, tenacious mu-

cous, containing blood. Accompanying this was a feeling of substernal oppression. On admission he appeared acutely ill. The chest examination revealed harsh bronchial breath sounds with fine and medium moist bubbling rales throughout. The heart murmurs were still present. His blood pressure was 220/140. It was felt that he had an attack of acute pulmonary edema on the basis of his hypertension. He improved markedly on oxygen administration and supportive therapy. Electrocardiogram showed left axis deviation and indicated myocardial disease. His urine at this time showed a specific gravity of 1.012 with a 1 plus albuminuria. Numerous bacteria and rare WBC and RBC were found on microscopic examination of the urine. He had a mild normocytic anemia with a hemoglobin of 10.5 Gms. His NPN at this time was 46 mgm.%. He was digitalized in the hospital and made an uneventful recovery. His blood uric acid was 7 mgm.% and he had a mild attack of gout while in the hospital.

The patient was readmitted to the hospital in June, 1948, with a history of hematuria for one week and left flank pain for one day with fever. Physical examination was not remarkable except for cardiac enlargement and a few fine rales over the right lung base. The blood pressure was 180/95. The patient was hospitalized on this admission for a period of five weeks. Thirteen urinalyses were done, revealing a constant albuminuria from a trace to 2 plus. The specific gravity of the urine never exceeded 1.012, and microscopic examination of the sediment revealed numerous red and white blood cells on a number of occasions. Values for the NPN consecutively during the hospital stay were: 56, 58, 81, 96, 106, 88, 94, 78, 66, 80, 68, 77, 82, 80, 84, 77. He showed a constant anemia with a Hgb. of approximately 10 Gm., but transfusions brought this up to 14.8 Gm. at time of discharge. Two urine cultures and one bladder culture all yielded a growth of *B. pyocyaneus*. Patient was treated with penicillin and streptomycin. He improved gradually and symptomatically after a rather hectic hospital course, being discharged after 5 weeks in the hospital.

He was readmitted to the hospital December 4, 1948, because of a gradual drop of his Hgb. to 9.2 Gm. During the interval he had had exertional dyspnea despite digitalis and some costo-vertebral angle pain. On admission his blood pressure was 170/110, and his physical examination was essentially unchanged. He received three whole blood transfusions in the hospital, and was discharged.

He was readmitted to the hospital on December 7, 1948, with acute pulmonary edema. NPN determinations on this admission were 76 and 81. He improved and recovered from the bout of pulmonary edema and was discharged from the hospital.

His final admission was on February 4, 1949. Since his previous discharge he had gotten along poorly, with much dyspnea. During the 18 hours prior to admission he had become much worse and became cyanotic.

\*From the Departments of Medicine and Pathology, Vanderbilt University School of Medicine, Nashville, Tenn.

**PHYSICAL EXAMINATION:** On admission his blood pressure was 200/110, and he was moderately cyanotic. There were moist rales over both lungs and the heart was enlarged. The rhythm was regular, and the systolic murmurs heard on previous examinations were still present. The liver was palpable 3 finger-breadths below the costal margin.

**LABORATORY DATA:** None on the final admission.

**COURSE IN THE HOSPITAL:** Patient appeared to improve slightly in an oxygen tent shortly after admission, but a few hours later respirations suddenly ceased, and cardiac action ceased shortly thereafter at 6:10 p.m. on February 4, 1949.

**DR. R. H. KAMPMEIER:** First, it might be well to have some comments from the Department of Radiology.

**DR. W. M. HAMILTON:** There is slight dilatation and blunting of the calyces on the left, and also on the right we have very similar changes. There are several areas which I am not sure are calyces, but there is certainly blunting of the calyces in one film. The large left ventricle fits in with the history of hypertension.

**DR. KAMPMEIER:** Are there any comments to be made about the distortion of the calyces?

**DR. HAMILTON:** I pointed out that we do have two little pockets of opaque media which look like a deformity in the kidney and may indicate abscesses, also there is something which is suggestive of a calculus but this may be in the overlying bowel content.

**DR. KAMPMEIER:** Would you say that this represents hydronephrosis?

**DR. HAMILTON:** I would say a rather mild degree.

**DR. KAMPMEIER:** We have here a rather remarkable story, found rarely in a 63-year-old man. He had known albuminuria and known hypertension for 32 years. In addition he was known to have urinary calculi 11 years before his death. In the later months of his life he developed the picture of cardiac failure as the result of his left ventricular involvement, having had some bouts of pulmonary edema and this brought him to the hospital. The nitrogen retention occurred in the last 11 months of his life, and with this the anemia we so commonly see in instances of more or less chronic uremia.

I would like to emphasize that this is a very unusual story—to have such a very long history of albuminuria and hypertension—and I do not recall that I have ever seen another such case. Since we are dealing with chronic albuminuria and hypertension, we can eliminate some forms of albuminuria quite promptly and need not even mention them for elimination. This patient was alleged to have a bout of gout, and just in passing we should point out that urates may be deposited in the kidneys. Actually we have no reason to bring this up for discussion here, though renal changes do occur in patients with gout.

Therefore we may consider at once the common condition in which there is albuminuria and hypertension ending as a cardiac death or a uremic death. That condition is chronic glomerulonephritis. In a certain number of such cases there may be a history of acute nephritis, but this appears in the minority of instances. (According to Bell,<sup>1</sup> in 46 of 186 cases of chronic azotemic nephritis there was a history of past acute nephritis.) In some cases of chronic glomerulonephritis there is a history of acute nephritis passing directly into the chronic phase which I suspect occurs in a minority of instances. In others there is a lag or latent period before we see the beginning of the picture of chronic nephritis. When one actually evaluates such cases one finds nephritis dating back many years as measured from the first acute attack to the eventual outcome. I wonder whether these really *do* date back to the acute phase of nephritis since there are usually too many gaps in information from the original attack of nephritis through to the late stage of the picture. In cases we have followed the patients have had acute nephritis followed by a stage during which they probably showed moderate albuminuria and a substantial number of red blood cells in the urine, finally going into the characteristic clinical picture of chronic glomerulonephritis. When one follows cases of this type one finds they usually run their course in about 10-12 years. Though you will read

<sup>1</sup>Bell, E. T.: Renal Diseases. Philadelphia: Lea & Febiger, 1946.



in the literature about cases running their course for many years, I do not believe that they are well substantiated cases. The degree of albuminuria which our patient had for such a long period of time, and the level of hypertension which had accompanied this for a long time, I believe are against a consideration of chronic nephritis. In addition, he has had two bouts of hematuria. On one occasion this can be explained on the basis of a calculus. On another occasion he had hematuria and did not have a calculus.

I should point out that if one follows the course of a patient who has chronic glomerulonephritis one may see at times, following acute respiratory or other infections, fever, albuminuria increasing from a 1+ to 3+ and an increase from an occasional red blood cell to a good sprinkling of cells. The blood NPN may rise to some extent. The patient then may recover from the exacerbation and later drop back to his former clinical picture. The case under discussion does not fit into the usual picture of chronic nephritis even with such exacerbations in mind.

Another important point I would like to make in this case is, if he had had chronic glomerulonephritis with the degree of hypertension and albuminuria as indicated, he should have had a lowered urinary specific gravity. He had a good level of specific gravity in 1942.

For these several reasons I cannot accept a diagnosis of chronic glomerulonephritis of 32 years duration.

Another condition we have to think about in this case is chronic pyelonephritis. Certainly most of these cases represent individuals who have some obstructing lesion, congenital anomaly or suffer from calculi. In such patients chronic infection may become established. This man's story is not that of infection. (You students in the Medical Section know the colored woman on Ward 8400 at present. She is an example of what I have just mentioned. She is about 64 years old, with hypertension of about the same degree as shown in this protocol, but she gives a history of recurrent bouts of fever, flank pain and thus is a good example of what one encounters with pyelonephritis.) There is really no evi-

dence of an obstructing lesion, which would predispose to pyelonephritis in the case under discussion. (It is admitted of course that there are some individuals who have a so-called hematogenous pyelonephritis.) Therefore I believe in this man that the persistent albuminuria, hypertension and lack of anything suggesting recurrent bouts of infection rule out a consideration of pyelonephritis. He did have some organisms in his urine on his last admission but that was the only occasion upon which this happened. Occasionally unilateral pyelonephritis occurs. Some have reported hypertension, albuminuria and unilateral pyelonephritis associated with congenital renal anomalies or aberrant renal vessels with relief following surgery. However, very few of these patients have been followed long enough to know the outcome with certainty. The points I made concerning bilateral hydronephrosis apply in this case, and thus we certainly have no evidence upon which to make such a diagnosis.

In thinking of albuminuria and hypertension I want to mention, in passing, intercapillary glomerulofibrosis. (There is an example of such disease in a patient on Ward 2316.) However, this occurs in diabetes mellitus of long standing and does not enter the picture here today.

If we consider arteriosclerosis alone, we will find in certain individuals arteriolar changes leading to changes permitting albuminuria. I feel we may dismiss this in our discussion because it is an abnormality occurring rather infrequently in the course of disease. Furthermore, we are dealing here with a man who has had albuminuria for 32 years before his death, and not coming on only late in life. Incidentally, the retinal changes which were described may be expected in an individual having arteriosclerosis and hypertension.

There is another disease which we must bring up for discussion—that is bilateral polycystic disease of the kidney. This is a disease which may have associated hypertension and finally a picture of uremia. The individual under consideration today had the things compatible with this diagnosis—long-standing hypertension and albuminuria. A complication not part of the picture



of polycystic disease has been calculus. Even when we come to the final stage of this man's disease with infection and treatment with antibiotics, the picture is compatible. Infection of cysts and accompanying pyelonephritis are not uncommon in polycystic disease. (The pyelonephritis in such cases is of late development and not to be confused with my discussion of several moments ago concerning chronic pyelonephritis as an explanation of 32 years of renal disease.) We might very well then be dealing with a condition of this type, and I wonder whether the X-ray picture might be compatible with the diagnosis of polycystic disease of the kidneys.

DR. HAMILTON: I should have used my head a while ago when I described the films. I think it is possible from what appears in these films, that these little irregular places are very suggestive of abscesses.

DR. KAMPMEIER: Yes, cysts do become infected, and then we are dealing not with pyelonephritis *per se*, but with infection of one or more cysts. The kidneys were never palpated, I take it?

DR. CLIFFORD TILLMAN: No.

DR. KAMPMEIER: We have an idea that one should have felt the kidneys, though circumstances may interfere with examination because of gaseous distension of the abdomen, a resistant abdominal wall and the like. I remember one instance in which a number of good clinicians all had an excellent opportunity to examine the abdomen without the kidneys being felt. When we had a chance to see the kidneys at autopsy, they were of such size that it seemed impossible they had been missed by at least five or six observers. So I would like to point out that though the kidneys were not palpated in this case, this fact does not prove anything.

As I think of polycystic disease in this case the course is much longer than any I visualize. In those instances in which I have seen death from this disease, it usually has occurred in the third or fourth decade, or possibly in the fifth, but not as late as in the seventh.

Therefore it seems to me that we have to consider two conditions in the case at hand,

a man having manifestations of renal disease for 30 and more years—glomerulonephritis and polycystic disease. I have pointed out that the course is atypical for glomerulonephritis. The maintenance of renal function until late in the disease and the story of gross hematuria do not ring true for chronic glomerulonephritis. The age at which this patient finally developed renal failure is also against such a diagnosis. In looking into the matter of polycystic disease I learn that patients with the disease may reach a late age, even as late as the seventies. This man was in his sixties. Therefore my *clinical diagnosis* is that of polycystic disease of the kidneys with infection of cysts, terminal uremia and cardiac failure.

DR. JOHN SHAPIRO: The Clinical Diagnoses at the time of death were:

- Hypertensive cardiovascular disease
- General arteriosclerosis
- Arteriolar nephrosclerosis

Anatomical Diagnoses:

CONGENITAL POLYCYSTIC DISEASE OF THE KIDNEYS

- Acute and chronic pyelonephritis
- Hypertrophy of the heart due to overstrain
- Passive congestion of the lungs, liver and spleen
- Arteriosclerosis, general

An autopsy slight pitting edema of the ankles was noted. There was free fluid in the right pleural space and both lungs were very heavy and edematous. The liver and spleen showed passive congestion. The heart exhibited a marked degree of left ventricular hypertrophy; it weighed 700 Gm., and no valvular lesions were present.

The kidneys were extremely interesting. Both were greatly enlarged and contained innumerable cysts. These cysts honey-combed the entire kidney and differentiation into cortex and medulla was impossible. The cysts varied from a few millimeters to two and a half centimeters in diameter. They did not communicate with the pelvis inasmuch as pressure on the cysts failed to empty them. All the cysts were distended with fluid; this varied from a clear, watery type to a green, rather viscid material. The

ureters were normal in appearance. There was moderate symmetrical enlargement of the prostate gland; this represented benign prostatic hypertrophy.

This, then, represented a case of bilateral polycystic disease of the kidney, almost certainly congenital in type. On occasion the differentiation between acquired and congenital cysts of the kidney may be extremely difficult or even impossible. However, the present case seems to be a classical case of the congenital variety and this is borne out by the microscopic examination.

It is indeed remarkable that this man could have survived for 63 years with the severe polycystic disease found at autopsy. One must conclude that sufficient functioning renal parenchyma was present to preserve pretty fair renal function because of the fact that appreciable elevation of the blood non-protein nitrogen was not observed until 1948. Gradual enlargement of the cysts probably caused compression atrophy of the functioning renal tissue over this long period of time. However, cardiac decompensation was the event which finally led to his death; we feel the extreme hypertension in this case was associated with the renal disease. The occurrence of hypertension in association with congenital polycystic disease of the kidneys is well recognized.

Most persons of the older age group with cystic disease of the kidneys do die in uremia. It is not infrequent that infection may be associated with these cysts; this is another insult leading to destruction of nephrons which are sorely needed by these patients. At this time we will not go into the interesting theories concerning the etiology of this lesion. I would like to make the point, however, that in a certain small percentage of the cases, the lesion is unilateral though in the great majority of cases the lesion is bilateral with severe and equal involvement of both kidneys.

I must agree with Dr. Kampmeier that a 32-year history of hypertension and albuminuria is extremely rare. I am aware of no other case in our files with such a long history.

DR. KAMPMEIER: I would like to com-

ment, and probably I did not clarify it enough, that I did not think this man died of uremia and that he really died of left ventricular failure. You will notice that the diagnosis of the kidney pathology was unsuspected, apparently, while he was a patient in the hospital. He had been hospitalized on two occasions and then died without the diagnosis being established. Dr. Shapiro says that these cysts might be hard to feel. Sometimes the cyst wall is pretty lax. On the other hand, some are under pretty good tension and one can then feel the kidney to be definitely nodular. Therefore the kidney disease may very well be recognized if one is able to palpate ideally.

I think we might have some comments also from the roentgenologists as to whether or not this X-ray pattern is of a type that should have been recognized for what it turned out to be.

DR. HERBERT FRANCIS: Here we are discussing two types of signs which are more or less frequent with polycystic kidneys. There is the type that we frequently find in the large polycystic kidney. (After all, we never see the kidneys themselves, but the perirenal fat in which the kidneys lie. Without this we would not be able to see the outline of the kidneys.) The two types we have are the spiderlike infundibula with elongation and more or less rounded irregular impressions upon these and the calyces due to cystic pressure. This case does not satisfactorily fit into that group as I recognize it. In the other type there is quite a lot which we cannot distinguish by X-ray examination. Many times these cystic changes are microscopic and in the older age group at times the size and general outline of the kidney may be within normal limits or only slightly enlarged. Again in the general outline we may actually see scalloped or irregular borders. We do not necessarily have an increased size bilaterally. Usually one or both kidneys appear large but they may be normal in size. I cannot very well make a diagnosis here of polycystic kidneys. I cannot say that it is incompatible, because we do see calyceal dilatation but without significant

changes in the general size. This is more suggestive of pyelonephritis.

DR. KAMPMEIER: When were those films made?

DR. TILLMAN: These were made in 1942, and I wondered if any others were made later.

DR. FRANCIS: I doubt very much that there had been sufficient change to alter the appearance of this case.

DR. HUGH MORGAN: I would like Dr. Shapiro to explain the difference between congenital polycystic disease and acquired disease.

DR. KAMPMEIER: From what little I would know about it my thought is that this is a congenital anomaly of the kidney and the degree certainly varies a lot at autopsy. Insofar as infection is concerned, I believe that infection of these cysts is not too unusual and they represent real pockets of pus, so to speak.

DR. SHAPIRO: I think that there can be little doubt that the cystic disease is congenital in this case. The differentiation between congenital and acquired cysts of the kidney is usually not difficult, though, in certain cases, an unequivocal differentiation may be impossible. Acquired cysts are usually situated in the outer part of the cortex while those of congenital cystic disease are scattered diffusely throughout cortex and medulla. Also, with acquired cysts, even when multiple, there is usually intervening recognizable renal tissue while with congenital cystic disease only small strands of tissue separate the cysts one from the other. We will not go into the microscopic picture which is also helpful in many cases.

DR. MORGAN: Would he have any cysts anywhere else?

DR. SHAPIRO: No. Cysts were not present in any other organ in this case.

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**Endometrial Carcinoma.** Randall, J. H., Mirick, D. F., and Wieben, E. E. *Am. J. Obst. & Gynec.*, 61:596, 1951.

From January, 1926, to January, 1945, 330 patients with proved endometrial carcinoma were admitted to the State University of Iowa Hospitals. All of these have been followed for five years or longer. The primary purpose of this paper is the presentation of a statistical analysis and summary of cases at the University Hospitals. In this series endometrial carcinoma was chiefly a postmenopausal disease. It was uncommon before the age of 40 years. Women who menstruated beyond the age of 50 seemed more likely to develop endometrial carcinoma. The incidence was greater in women who were nulliparous and who had fibromyomas of the uterus. The most common symptom bringing the patient to the doctor was irregular vaginal bleeding.

The present-day method of therapy is the application of intrauterine radium using multiple foci followed in 4 to 6 weeks by simple total hysterectomy. Multiple foci of radium were superior to tandem applications in affecting sterilization of the local lesion and either method was more efficient in this regard than x-radiation. The overall five-year survival rate for the cases treated was 56.2 per cent. Those treated with intrauterine radium followed by hysterectomy had a survival rate of 81.6 per cent. Two important factors in the end results were the clinical stage of the disease and the histologic group of the tumor. Other factors affecting prognosis were age of the patient at time diagnosis was made, and the presence and severity of any associated systemic disease which in itself would influence longevity.

(Abstracted by Hamilton V. Gayden, M.D., Nashville, Tennessee.)



## UNIVERSITY OF TENNESSEE COLLEGE OF MEDICINE MEDICAL STAFF CONFERENCE\*

DR. R. C. SEXTON: The first patient for discussion today is a 62-year-old white female whose illness began in July, 1949, with an intense frontal, and at times diffuse, headache which was more pronounced at night and early in the morning. She was able to continue her housework and do some farm work until August, 1950, at which time she began to note drowsiness, fatigability, anorexia, weight loss, bilateral ankle edema and exertional dyspnea. These symptoms persisted for about 3 weeks. One night shortly after retiring, the patient experienced acute dyspnea and had to sit upright in bed in order to breathe. A private physician was consulted whereupon the patient was referred to the West Tennessee Cancer Clinic and thence to a private hospital for diagnostic studies.

Laboratory procedures at that time revealed a red blood cell count of 8,080,000, hemoglobin of 127% or 18.6 Gm. per 100 cc., white blood cell counts ranging from 16,150 to 23,350 with 90% polymorphonuclear leukocytes; blood NPN of 55 mg.%, total proteins of 6.08 Gm., with 4.0 Gm. albumin and 2.08 Gm. globulin per 100 cc.; BSP retention of 7% at 45 minutes (dosage of 5 mg. per kg.); and bone marrow findings consistent with polycythemia vera.

The patient was described as being listless, thin and had the physical and roentgenographic findings of pleural effusion on the left. A firm, palpable mass was noted in the left upper quadrant which moved with respiration.

Three thoracenteses were done with the withdrawal of a total of 2,000 cc. of straw colored fluid which was sterile on culture for pyogenic and acid fast organisms. The fluid showed no malignant cells. Radiological studies including upper gastrointestinal studies, barium enema, chest plate and retrograde pyelograms revealed upward displacement of the stomach, diverticulum of the duodenum, and fluid in the left pleural space. A biopsy of the mass in the left upper quadrant revealed it to be spleen. This biopsy and a punch biopsy of the liver secured at this hospital will be discussed later by Dr. Jones.

During 3 weeks of hospitalization, 3 or 4 phlebotomies were done and she was digitalized. Later the digitalis was withdrawn without ill effects.

From the time of her discharge from the private hospital until her admission to John Gaston Hospital on March 12, 1951, the patient remained relatively asymptomatic except for weakness and anorexia. She resumed part of her household duties without difficulty and remained fairly comfortable until about 3 weeks prior to her present admission when she began to experience pleuritic

pain on the right and noted exertional and nocturnal dyspnea. A slight, dry, non-productive cough was present. There had been no pedal edema or headaches associated with present illness.

Past medical history, the personal and family histories were not relevant.

Physical examination on March 12, 1951, revealed an elderly, thin, somewhat dehydrated, white female in no acute distress, but obviously experiencing some respiratory difficulty. The skin was dry with poor turgor and a few purpuric lesions varying from 1 to 3 cms. in diameter were noted on the extremities. The patient was edentulous without prosthesis. The conjunctiva and mucous membranes were quite red. External and fundoscopic examinations of the eyes were negative except for minimal retinal arteriosclerosis and rubor. Moderate peripheral arteriosclerosis was present. Examination of the lungs revealed findings consistent with extensive right pleural effusion. Tachycardia was present, but an accurate estimate of heart size could not be made due to the pleural fluid. Blood pressure was 164/100.

The liver was felt just below the right costal margin and was slightly tender. A firm, non-tender mass was felt in the left upper quadrant of the abdomen, which extended medially to the umbilicus, and inferiorly to the pelvic brim. It descended with inspiration. There was no lymph node enlargement or abnormal neurologic findings. The rectal and vaginal examinations revealed only kraurosis vulvae.

The hematocrit was 57%, hemoglobin 18.5 Gm., white blood cell count 19,900 and red blood cell count 7,400,000 per cu. mm. The stained blood smear showed 81% segmented neutrophils, 8% band forms, 10% lymphocytes, and 1% monocytes. Toxic granules were present in the leukocytes and occasional smudge cells were seen. Platelets numbered 408,000 per cu. mm. (Rees-Ecker). Bleeding time (Ivy) was 2 minutes; clotting time (3 tube method) was 7 minutes, 50 seconds. The centrifuged sediment of the urine showed 10 to 20 leukocytes and 2 to 3 erythrocytes per high power field. Blood NPN was 43 mg. and serum bilirubin 1.0 mg. per 100 cc. Total serum protein was 5.0 Gms. with 3.7 Gm. albumin, 1.3 Gm. globulin. Prothrombin time was 20 sec. (control 16 seconds). Bromsulfalein retention after 45 minutes was 17% (dosage of 5 mg. per kg.). A serological test for syphilis was negative. Fluid from the left pleural space had a specific gravity of 1.020, contained 4.0 Gm. of protein per 100 cc., and 90% lymphocytes microscopically. Two specimens showed no malignant cells.

An electrocardiogram revealed sinus tachycardia and an occasional ventricular premature contraction.

Since admission, four thoracenteses have been done with the removal of 2,100 cc. of straw colored fluid from the right pleural space. Three phlebotomies have been done with the removal of 1,200 cc. of whole blood. The patient has experienced considerable relief from these procedures and is

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now able to walk about the ward without undue discomfort. Hemodynamic studies revealed a venous pressure of 82 mm. of water. The arm to lung circulation time is 9 seconds (ether), and arm to tongue circulation time is 15 seconds (calcium gluconate).

Dr. Carroll, will you discuss the X-ray studies in this patient?

DR. DAVID S. CARROLL: Examination of the chest on March 12, 1951, shows a pleural effusion on the right obliterating all pulmonary parenchyma except the apex. There is, also, a pleural effusion on the left extending up to the seventh rib laterally. The visualized portion of the lung fields is essentially negative. Heart size cannot be determined. There is calcification in the aorta. Examination of the abdomen shows enlargement of the liver. There appears to be a mass in the left upper quadrant, which might possibly be liver also. A small opacity is noted to the left of the first interspace and a urinary calculus cannot be excluded. Examination of the hands, lateral lumbar spine, both tibias and fibulas, both femora and lateral skull shows no bone or joint pathology. Examination of the chest on March 22, 1951, reveals no cardiac enlargement. There is practically no fluid left on the right. There is still some fluid present at the left base, however. The lung fields show no consolidation or infiltration, but there is accentuation of the bronchovascular markings throughout both lung fields.

DR. R. C. SEXTON: Dr. Jones, will you discuss the biopsy findings?

DR. RUSSELL JONES: The microsections of the splenic biopsy revealed extensive coagulation necrosis in which the indistinct structural outlines of the splenic tissue could be discerned. It is most probable that this change represents ischemic infarction and has not resulted from a granulomatous response prior to the necrosis. There are no large vessels present in the microsections, but most of the smaller ones are nearly all thrombosed. In any area of coagulation necrosis, such thrombi are to be expected and should not be construed as the cause of the infarction. There are no old areas of fibrosis; most of the necroses appear recent with areas of peripheral fibroblastic and leukocytic infiltration.

There are various conditions in which such infarction may occur such as thrombotic emboli, multiple small thrombi in uremia, thrombosis of portal or splenic veins, myelogenous leukemia, congenital hemolytic anemia, idiopathic thrombocytopenic purpura and polycythemia. Most of the splenic biopsy tissue showed necrosis, but the small amount of adjoining tissue helps to exclude leukemia. The smaller areas of intact splenic tissue show rather distinct sinusoidal channels with increase in the connective tissues of the sinusoidal walls, suggesting some chronic passive congestion. Most of these sinusoids are empty. There is no evidence of extra-medullary hematopoiesis. The most reasonable interpretation based upon the microsections alone without recourse to clinical data would be multiple infarcts of the spleen.

The microsections of the needle biopsy of liver shows some distortion of the hepatic cord cells. (Fig. 1.) No liver lobules are seen in their entirety; only portions of liver lobules are present. There is slight increase in the connective tissues around the portal areas, and this is associated with a few mononuclear leukocytes. These changes are too insignificant for a diagnosis of either pericholangitis or cirrhosis. A more significant finding is the presence of large cells resembling megakaryocytes in some of the sinusoids. Their nuclei are either multilobated or are large, hyperchromatic and round to horseshoe shaped. Also, there are in the sinusoids little groups of cells with nuclei ranging from moderate size down to a diameter of about half that of the lymphocytes. These cells appear to be islands of extra-medullary hematopoiesis. Since Dr. Boone will discuss the significance of these splenic and hepatic changes in the light of other findings, I feel that further elaboration is unwarranted at this time.

DR. SEXTON: Dr. Howard Boone will begin the clinical discussion of the patient.

DR. H. A. BOONE: From first examination of this case, it seems a straightforward one, but after more critical analysis, there appear to be more possibilities. In approaching a differential diagnosis, it seems



logical to use polycythemia as a starting point. There is unequivocal polycythemia, and it is present in a good number of clinical conditions other than polycythemia vera. A group of conditions cause relative polycythemia such as acidosis, vomiting, shock, Addison's disease and diarrhea. In these situations, there is hemoconcentration and the blood volume is reduced. We have no history or clinical manifestations to support such diagnoses; so, it seems safe to eliminate this type of polycythemia.

Then there are the so-called secondary polycythemias. Congenital heart disease is especially notable in this group. Polycythemia may be very marked in such cases. We have no important evidence for a diagnosis of congenital heart disease. Acquired heart disease is sometimes accompanied by polycythemia. This patient has hypertension but the heart is not significantly abnormal either by physical examination, X-ray or EKG. Respiratory disease is well known to be associated with polycythemia. Notable among the respiratory diseases is pulmonary emphysema. In this case, we have little or no evidence for such a diagnosis. It might be mentioned that many or maybe even most cases of emphysema do not show polycythemia until after heart failure has occurred. Pulmonary fibrosis and silicosis have been associated with polycythemia, but there seems little likelihood for such being the case here. Cavernous hemangioma and arterio-venous fistula are occasionally the cause of polycythemia, but with no objective evidence for such a lesion in the skin or extremities, and no X-ray evidence of pulmonary lesions, these conditions seem unlikely as a diagnosis. The pulse in A-V fistulae is usually quite rapid and this patient's pulse is around 90. Ayerza's disease might be the cause of polycythemia. In this condition, there is usually a longer history of predominantly respiratory symptoms such as progressive dyspnea, cyanosis and clubbing of the fingers. Often the right heart is enlarged too. This does not seem an important possibility here.

High altitudes are well known to result in polycythemia in a good number of the inhabitants. This patient has not lived at high altitudes.

Chemical agents such as coal tar and aniline derivatives and cobalt are capable of producing polycythemia. A great deal of interest has been shown in cobalt since it was found to be present in vitamin B12. It has been shown to cause polycythemia, and it is felt that the mechanism involves tying up sulfhydryl and other groups taking part in cellular respiration; the resulting cellular anoxia acts to stimulate hemopoiesis. It is interesting that cysteine will interfere with this process, probably by forming inert compounds with cobalt.

Some 65 or so cases of tuberculosis of the spleen have been reported associated with polycythemia. Most of the cases did not have a marked elevation of the red blood cell count or significant elevation of the hemoglobin. But some 12 to 15 of the cases had a red cell count around 8,000,000. This patient has a family history of tuberculosis; she has considerable weight loss, bilateral pleural effusion and a low grade fever. Injection of first strength PPD resulted in a 6 mm. area of redness, so we cannot say that it's either positive or negative; but the second strength would probably be positive. So we see that many things warrant serious consideration of tuberculosis of the spleen. In most cases of tuberculosis of the spleen, the lesion is a miliary one and usually other tissues such as the liver and lung are involved. The splenic biopsy showed no evidence of tuberculosis, and if miliary tuberculosis of the spleen were present, it seems unlikely that it would have been missed both by gross examination and in the biopsy. The lungs show no lesions that make the radiologist unduly suspicious of tuberculosis. This patient is not as ill as patients usually are with miliary tuberculosis, and she improved after phlebotomy last September or October. So I believe that tuberculosis of the spleen is a less likely diagnosis than polycythemia vera.

Let us see if the clinical picture fits polycythemia vera. This diagnosis is usually, and rightly, made by excluding other types of polycythemia. We have excluded all the other causes, either rightly or wrongly. In addition, the history is quite typical of polycythemia. The pain in the chest is an unusual symptom in polycythemia vera, but I



attributed that to pulmonary infarcts. Its chronicity and recurring quality seem to fit because patients with polycythemia vera are troubled a great deal by recurring thrombosis and emboli in various parts of the body. Coronary thrombosis is less frequent than we might expect with so many thrombi elsewhere. This has been explained by the fact that the coronary vessels undergo more mechanical massage, so to speak, by a forcibly contracting myocardium. The weight loss in this patient is quite disturbing, because patients with polycythemia vera do not usually exhibit much cachexia. But a few cases do. (A clinical-pathological conference in the *New England Journal of Medicine* a year or so ago included a case with marked weight loss.) Pleural effusion is not a common finding in polycythemia, but an explanation for that has already been given. Splenomegaly, hepatomegaly, and purpura are common signs of polycythemia vera. This patient has hypertension, and it is not the type of mild hypertension seen in polycythemia vera that subsides after the red cell mass and blood volume have been reduced to normal. Gaisbock described a syndrome many years ago of polycythemia vera with hypertension. In his cases, the spleen was not enlarged. We know that about 25 per cent of cases of polycythemia vera will not have an enlarged spleen. So it is felt by most that so-called Gaisbock's disease is nothing more than the occasional case of polycythemia vera without splenomegaly in which there is coincidentally hypertension. I feel that the hypertension is merely a coincidental disease here. The laboratory findings in polycythemia vera will be discussed by others, so suffice it to say that those in this case are compatible with polycythemia vera.

The diagnosis in this case, I think, is most likely polycythemia vera. Now let us consider briefly the etiology. We know a good many things that are normal or abnormal in polycythemia vera, but we still know little more about the etiology than Osler did 50 years ago when he wrote of this malady. We know that the oxygen saturation of blood is normal; the life span of erythrocytes is normal; the erythrocyte fragility is normal; carbonic anhydrase ac-

tivity is normal in its relationship to erythrocyte mass. A lot is written about the relationship of polycythemia vera to myelogenous leukemia. Many believe that they are related diseases and that one often precedes or follows the other. There are over 80 cases in the literature in which both diseases were reported in the same individual. In many of these cases inadequate evidence for a diagnosis of both diseases was presented. Schwartz felt that only 30 cases could be accepted for a diagnosis of both diseases, and of these 30 cases, 25 had surely had radiation therapy. Of the five remaining cases, only one was adequately documented to eliminate the possibility of radiation therapy. So it is his opinion that leukemia was most likely a result of radiation therapy. It is interesting to note in this connection that leukemia following X-ray therapy is slower in developing and usually chronic, while leukemia following P32 therapy is more rapid in onset and most often acute in type.

DR. SEXTON: Dr. Gendel, you will discuss the hematologic findings in this patient and in polycythemia vera in general?

DR. BENJAMIN GENDEL: I would like to confine my comments to two aspects of this patient's illness. One of the points which interests me is the purpura presented by this patient. It would seem paradoxical for a patient with a plethora of all the blood cellular elements to show bleeding phenomena and purpura. However, these are not unknown in patients with polycythemia vera and there may be bleeding into the skin or mucous membranes. Hemoptysis, hematemesis, melena, hematuria, as well as other hemorrhagic manifestations, also occur. We have recently seen a patient at Kennedy Hospital who was admitted because of an acute surgical abdominal condition. A laparotomy showed the patient had a severe intra-peritoneal hemorrhage without obvious cause. Postoperatively the patient was found to have polycythemia vera. However, I believe that the purpuric lesions demonstrated by this patient are characteristic of senile purpura and have very little to do with her fundamental illness. Senile purpura is due to a loss of elastic tissue in the skin which results in a

lack of support to the superficial vessels. This patient looks nearer 80 or 90 years of age than her given age of 62.

The other point on which I would like to comment is the blood picture in polycythemia vera. It is not generally realized that polycythemia vera is not only characterized by an increase in the red count but by a pan-myelopathy—a disturbance of all the marrow elements. The blood picture is characterized by an increase in red cell count, frequently between 8,000,000 and 12,000,000 red cells per cu. mm., a concomitant increase in hemoglobin between 18 and 22 Gm., and, also, frequently, an elevation in leukocytes and in platelets. The leukocyte count is usually between 12,000 and 25,000 with an elevation in the percentage of segmented neutrophils, an increased number of band cells, and the presence, occasionally, of metamyelocytes or myelocytes in the peripheral blood. The platelet count is frequently elevated often between 1,500,000 and 3,000,000 platelets per cu. mm. The problem of the association of chronic myelogenous leukemia and polycythemia vera is one about which there is poor agreement. I believe that many cases of what is referred to as leukemia with polycythemia vera actually have a leukemoid blood picture and not true leukemia. It is well to remember that immature elements of the red and white cell series may occur in uncomplicated severe polycythemia vera, and this does not necessarily indicate that the disease is complicated by chronic myelogenous leukemia.

DR. SEXTON: Dr. Carroll, will you discuss radio-therapy in polycythemia vera?

DR. DAVID S. CARROLL: There are many objections to the treatment of polycythemia vera by either drugs or phlebotomy. Dosage is often difficult to control. White blood cell and platelet levels are very difficult to control, and there is often a secondary stimulation of the bone marrow. In general, one may safely say that neither drug therapy nor phlebotomy offer as nice and complete control of the blood levels as does radiation therapy.

There are two common methods of administering X-ray therapy for polycythe-

mia vera. The first of these is by applying the radiation to the long bones, sternum, pelvis and spine, and the second is by total body radiation. The treatment in either instance must be fractionated over several days in order to avoid severe nausea and vomiting due to acute radiation sickness. If treatment by total body radiation is utilized, it will require 100 to 150 roentgens to accomplish the desired result in the usual patient. By applying the radiation to the long bones, sternum, pelvis and spine, one can accomplish the same results without delivering such a large dose to the entire body.

However, with either technique, a very large volume of normal tissue absorbs the ionizing radiation, and it is this integral or volume dose—that is, the total radiation absorbed by the body—which is the limiting factor in this form of therapy. A method of administering radiation therapy in which the ionizing radiation could be applied directly to the blood-forming cells of the bone marrow without disturbing the normal tissues of the body would of necessity be a better form of therapy. One would obtain the beneficial effects of irradiating the bone marrow, but would avoid the harmful effects of a large volume dose of radiation. Fortunately, in radio-active phosphorus we have such a weapon.

Radio-active phosphorus has a half-life of 14.3 days and emits beta radiation with a maximum energy of 1.71 mev. No gamma radiation is emitted. P 32 can be obtained either from the cyclotron or from the radio-active uranium pile. Phosphorus is absorbed by the body and goes into nucleoprotein or rapidly multiplying cells and an inorganic phosphates in bone. Since the greater amount of phosphorus is taken up by bone, it is possible, by administering radio-active phosphorus, to obtain the same beneficial control of blood vessels as obtained with X-ray, but with a much smaller volume dose of ionizing radiation. In the average patient, one may obtain the same control of the disease as with X-ray and the total amount of radiation absorbed by the body would be equivalent to only about 2 to 2½ roentgens of total body radiation. Radio-active phosphorus is then a better



weapon in the control of polycythemia vera than is X-ray.

Provided the platelet count is elevated, from 3 to  $4\frac{1}{2}$  millicuries of the radio-active isotope would be administered, the dose depending upon the degree of polycythemia. If the platelet count is not elevated, the dose would be somewhat smaller. Also, if the material is given parenterally, the dose would be approximately 25% smaller. In no instance should the dose of radio-active phosphorus be repeated in less than two months. There are two reasons for this. First, the radio-active isotope has no effect on the circulating red cells, but acts only on the blood forming cells. Second, with the half-life of 14.3 days, the excretory rate, also, being considered, it requires about seven weeks for 95% of the radiation to be delivered.

In summary, P 32 is the best therapy for polycythemia vera at the present time, and if this form of therapy is not available, X-ray therapy would be the second choice.

DR. R. C. SEXTON: Our second case for discussion today is a 42-year-old colored female who was admitted to John Gaston Hospital on March 5, 1951. It is regrettable that this patient is unable to give a coherent history. The chronology and symptomatology of her illness have varied considerably in different accounts. The following seems a fairly accurate resume of what she has told us.

The patient came to the hospital because of the coughing up, several times, of about one tablespoonful of bright red blood four days prior to admission. Slight blood streaking of the sputum was noted the following day. No other hemoptysis has been noted. The patient alleged that she first became ill in March, 1950, when she began to experience migratory joint pains with only slight swelling of joints and a chronic cough productive of white phlegm. The patient has noted wheezing during the past year and has assumed that she has asthma, though no severe paroxysms of dyspnea have been noted. This symptom subsided in September, 1950. An estimated weight loss of approximately 20 pounds has occurred during the past year. The patient has been moderately anorexic. Since December, 1950, the patient experienced 2 to 3 loose stools daily 2 or 3 days each week. No blood or mucus has been noted in the stools. Occasional "dizzy headaches" have occurred during the past year.

The patient was hospitalized in 1946 in Hot Springs, Arkansas, for a hysterectomy. Menses were regarded as regular until that time. No pregnancies have occurred. No history suggestive

of acute syphilis is obtainable. However, the patient states that she went to the Health Department in Bluff City, Arkansas, in 1943 in order to obtain a health card and that following a blood test she was given three arm injections at weekly intervals for malaria. She was asymptomatic at that time. She denies excessive alcohol ingestion or periods of nutritional deprivation at any time. Portions of the family history of which the patient is aware are not relevant.

Physical examination on admission revealed a well-developed, well-nourished moderately obese, cooperative, slightly euphoric, normotensive, afebrile colored female in no acute distress. The head and neck and associated organs were normal except for grade II retinal arteriosclerosis and a firm, non-pulsating mass in the right supra-clavicular fossa which was found on X-ray of the chest to be a cervical rib. The heart was normal except for tachycardia. A few dry, crackling rales and expiratory squeaks were heard over both lungs. The liver was felt 8 cm. below the right costal margin and 4 cm. below the left costal margin. It moved freely on respiration and was non-tender. No nodules were palpable. No bruit or friction rub were heard over the liver. The spleen was not felt. Pelvic and rectal examinations were normal except for the absence of the uterus. The skin and nervous system were normal except for hyperactive reflexes.

Laboratory procedures revealed a hematocrit of 33 mm., WBC of 6,850 of normal distribution, normal appearance of RBC and thrombocytes on the stained smear, negative urinalysis and negative sickling trait after 24 hours. The total serum protein was 8.6 Gm. with 5 Gm. albumin and 3.6 Gm. globulin per 100 cc. The cephalin flocculation reaction was 1 plus at 24 hours, prothrombin concentration was 100% and the serum bilirubin was 1.1 mg., with a 1 min. fraction of 0.3 mgs. BSP retention after 45 min. was 25% and 28% on two separate occasions. The bleeding time was 3 min. and 20 sec. Blood serological test for syphilis was positive through 20 Kahn units on March 7 and 12, 1951. The cerebrospinal fluid was normal as regards dynamics, serology, cells and protein. The VDRL (cardiolipin flocculation) test for syphilis was positive through the 1:4 dilution. Benzidine occult blood tests on stools were 4 plus on 3 separate occasions (no meat restriction). First and second strength tuberculin tests were negative at 24 hours and 48 hours. Three specimens of sputa showed no acid fast organisms. The sedimentation rate was 41 mm. per hour with a maximal fall of 26 mm. per min. when corrected for anemia. The brucellergin skin test was negative at 24 hours and 48 hours.

Sternal marrow studies disclosed no evidence of primary blood dyscrasia. An electrocardiogram revealed sinus tachycardia.

The patient's course in the hospital has been uneventful. A few episodes of nausea have occurred which may have been due to medication. She has been afebrile except for occasional eleva-



tions to 99° F. Therapy has consisted of a high protein, high carbohydrate diet with vitamin supplements, choline chloride, crude liver extract, and sedation.

Dr. Carroll, will you discuss the X-ray findings in this patient?

DR. CARROLL: On March 5, 1951, examination of the chest shows the heart to be normal in size and contour. The lung fields are clear. Examination of the abdomen shows the soft tissue shadows fairly well outlined and appearing within normal limits. There is no evidence of calculus in the KUB or the gall bladder area. The gastrointestinal pattern is normal, and the bony architecture is normal. The lower margin of the liver is barely above the iliac crest. On March 7, upper gastrointestinal study reveals the esophagus, stomach and duodenum to be normal. On March 12, detail films of the right upper quadrant after Priodax by mouth reveals a normal concentration of dye in the gall bladder. On March 23, examination of the colon by barium enema reveals no evidence of pathological changes. Examination of both hands shows no evidence of Boeck's sarcoid or any other disease.

DR. SEXTON: Dr. Dunavant, will you discuss the peritoneoscopic findings?

DR. DAVID DUNAVANT: The parietal peritoneum was normal. The liver was diffusely involved with fine granular, grayish nodules varying from 1 to 3 cm. in diameter. The liver edges were rounded. Larger firm grayish-white nodules were seen on the inferior surface of the liver adjacent to the gall bladder. The gall bladder was normal. The peritoneoscopic diagnosis is portal cirrhosis.

DR. SEXTON: A punch biopsy of the liver using the Vim-Silverman needle was done in this patient. Dr. Jones, will you discuss the biopsy specimen?

DR. JONES: The specimen is a Vim-Silverman biopsy of the liver. Examination of the microsection shows only portions of hepatic lobules. The architecture cannot be definitely interpreted. In one fragment of tissue, a mild degree of fibrosis and infiltration by round cells is seen in the periportal areas. In another fragment of tis-

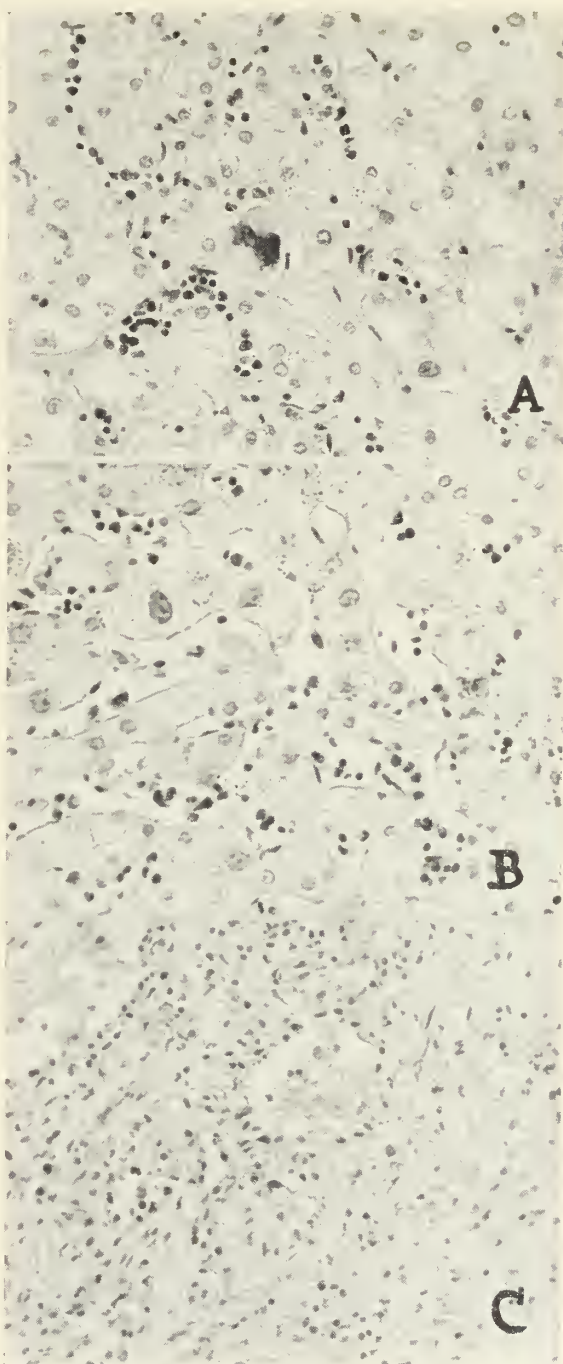


Fig. 1 (Case 1): Polycythemia Vera. A and B show the areas of hematopoiesis in the hepatic sinusoids. The large cell in the center of A is a megakaryocyte. C shows the distinct sinusoids with thickened walls in the upper left while the lower right reveals the border of a necrotic zone.

sue, there are several tubercle-like structures with giant cells, epithelioid cells and some collagen formation. (Fig. 2.) No fungi are present and no acid-fast organisms are present in Ziehl-Nielsen stains. A definite diagnosis is not warranted on the

basis of this histologic picture; it may be due to tuberculosis, Boeck's sarcoid, syphilis, fungi, foreign material and even parasites. The latter two would appear to be excluded. From my own experience, I have seen a few cases of periportal tuberculosis or tuberculous cirrhosis accompanied, however, by tuberculous lymphadenitis or tuberculous peritonitis.

DR. BLEECKER: Is there a possibility, Dr. Jones, of ordinary Laennec's cirrhosis?

DR. JONES: Yes, with a superimposed granulomatous inflammation.

DR. SEXTON: Dr. Phil Bleecker will continue the discussion of this patient.

DR. PHIL BLEECKER: This case presents a most baffling and provocative problem since we are told that even after liver biopsy the diagnosis is still obscure. Since

we have to have some base point at which to commence our discussion, it may well be *a propos* to discuss those causes of hepatomegaly which microscopically may show granulomatous lesions with tubercle formation.

In this hospital generally, in the Negro race frequently, and in this specific case that showed a positive blood Kahn and positive cardiolipin test, syphilis must receive adequate consideration. Syphilis of the liver may occur in two forms—the congenital and acquired. The congenital lesions tend to be diffuse, the acquired tend to be localized. It is of historical interest that Galen said syphilis originated in the liver from "corruption of the humors." Because of the lack of other stigmata and the patient's age, congenital syphilis may be reasonably excluded. The hepatic lesions of acquired syphilis in the secondary stage consist of (1) syphilitic hepatitis with jaundice and (2) acute yellow atrophy. It must be pointed out that in view of recent information gleaned during World War II, it is conceivable that many of the above cases could have been instances of viral hepatitis occurring fortuitously in individuals with a positive blood Kahn. In the tertiary stage, acute and subacute hepatitis may be seen, but more commonly a type of syphilitic cirrhosis is observed. In these instances syphilomata (nodules prior to caseation) are seen scattered throughout the liver. The arteries usually show endarteritis and the tissue shows amyloid degeneration. These findings did not appear in the liver sections in this case. Multiple gummata may occur and usually give an irregular, scarred contour to the liver producing so-called *hepar lobatum*. The peritoneoscopic picture in our case belied this description. The syphilitic cirrhotic patient may show ascites, splenomegaly and hematemesis, but one important factor must be mentioned: the various luetic hepatopathies respond well to specific therapy. This could be used as a diagnostic test in this instance. I feel that the positive serology is a coincidental finding in the case under discussion.

Tuberculosis of the liver must be considered because of the history of phthisic contact, chronic cough, hemoptysis and the mi-

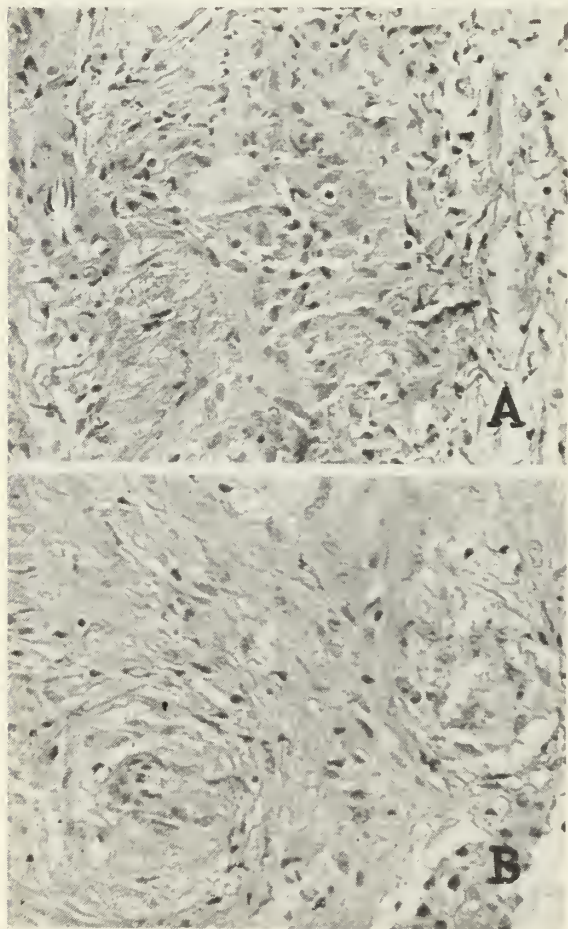


Fig. 2 (Case 2): Hepatic Tuberculosis. A and B show areas of miliary granulomata resembling those found in tuberculosis or Boeck's sarcoid. These were located in the portal zones. The rest of the hepatic tissue in the Vim-Silverman biopsy was unaltered.



croscopic pathologic picture comparable with tuberculosis. Miliary tuberculosis is relatively common but these lesions were larger than miliary nodules and the liver was larger than is seen in miliary involvement. There was not the systemic involvement seen with miliary tuberculosis; fever and toxemia were absent. Tuberculous pericholangitis can occur and this is characterized by tubercles and granulation tissue which initially occupy the portal spaces. Eventually cavities form and break into the bile ducts. Usually these lesions originate in the intestine from tuberculous ulcers which were not demonstrable in this case. Tuberculomata may occur, but again this does not fit the peritoneoscopic observation. Because of the compatible microscopic description of the lesions, we cannot rule out tuberculosis, but I feel that the negative tuberculin tests, negative chest X-rays, benign clinical course and negative sputum tests tend to make unlikely the possibility of hepatic tuberculosis. It would have been helpful to have used some of the biopsy specimen to inoculate a guinea pig.

Such miscellaneous lesions as actinomycosis or histoplasmosis must be mentioned but there is not sufficient evidence to implicate them here.

Ordinary portal cirrhosis must be mentioned because it occurs numerically much more often than any of the above-mentioned causes, but the pathologic picture is not consistent with this unless it be engrafted upon another distinct process.

As a final and most probable consideration, I choose sarcoidosis—because of the compatible pathologic picture, negative tuberculin tests, hyperproteinemia, hyperglobulinemia, one anti-complementary Kahn test, benign clinical course, enlarged liver (found in 25% of cases in Kennedy Veterans Hospital series), absence of fever, and negative sputum tests.

DR. N. W. GUTHRIE: Although this patient presents several possible diseases, there is only one disease about which anything definite can be done, namely syphilis. I think this patient should have anti-syphilitic therapy.

DR. SEXTON: The use of cortisone or ACTH might reduce the amount of hepatic

fibrosis consequent to treatment. What is the opinion of the group regarding the concomitant use of cortisone or ACTH and penicillin?

DR. JONES: It would be satisfactory if the patient has syphilis for it might reduce the amount of scarring but I believe it would be harmful if the patient has tuberculosis.

DR. J. P. MILNOR: There are reports of favorable treatment of Boeck's sarcoid with cortisone.

DR. JONES: I believe that the reports indicate that cortisone produces a favorable response early, only to have an exacerbation of the disease subsequently. The literature describes a chronic granulomatous condition of the liver due to syphilis and although I am not qualified to discuss the pathological picture, I believe this could fit the clinical picture in this case. I, therefore, feel that a therapeutic trial of penicillin is justified. Of course, in the treatment of syphilis, we have the therapeutic paradox to worry about. In curing the disease we may significantly increase the scarring of the liver. If this were definitely proven to be syphilis, the use of ACTH or cortisone, as suggested by Dr. Sexton, might be justified.

DR. HALL S. TACKET: There have not been many cases of sarcoidosis reported in which treatment with ACTH or cortisone was given. Two cases have been reported by Sones and his associates and one case by Galdston and his co-workers. Patients have shown improvement in respiratory function as measured by vital capacity and maximal breathing capacity. Chest X-rays have shown some clearing of parenchymal lesions and regression of enlarged hilar nodes. Follow-up has not been sufficiently protracted for one to know how beneficial this therapy is.

Incidentally two of these three cases developed significant psychosis during therapy. One of them developed paranoid schizophrenia that required electrical shock therapy. The other developed severe depression leading to suicide.

Dr. Diggs, do you think the pathological changes in this case are compatible with histoplasmosis?



DR. DIGGS: I refer that question to Dr. Jones.

DR. JONES: Usually in the lesions of histoplasmosis, one can identify the intercellular structures in the mononuclear cells that are diagnostic of this condition. The lesion may consist predominantly of these macrophages filled with the fungus or may resemble the lesions in this case with tubercles and caseation necrosis.

DR. W. H. SUTLIFF: We have followed a case of histoplasmosis at Kennedy Hospital with serial liver biopsies. Early biopsies showed a mononuclear leukocytic response and later biopsies have shown a diffuse granulomatous process with tubercle formation.

DR. SEXTON: In accordance with the recommendations of this seminar, we shall proceed with specific anti-syphilitic therapy using potassium procaine penicillin G at

the rate of 600,000 units daily through 6,000,000 units. At appropriate intervals after treatment repeat liver function studies and liver biopsies will be done. The patient's temperature during the first 72 hours after the institution of treatment will be checked at 2 hour intervals in order to check for the febrile component of the Jarish-Herxheimer reaction.

If functional or anatomic evidence of therapeutic response are not obtained after a reasonable period of time, we shall again consult this group regarding further therapeutic or diagnostic procedures.

We wish to thank all of the participants for their discussions and comments. The meeting is adjourned.

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*(If possible, a subsequent note on the clinical course of this case will be published. —The Editor.)*

# President's Message

## Rededication to Service Above Self



DR. KELLY

Mr. Toastmaster, members of the Tennessee State Medical Association, members of the TSMA Auxiliary and guests.

It's unfortunate that you had to be chosen as the

group that must listen to two presidential addresses. However, you may find some comfort in the knowledge that while you are leaving to your posterity a heavy burden of taxation, you are bearing this ordeal for them, as this is the only year in which the addresses of both the outgoing and incoming presidents will be given.

I would like to begin these remarks, as well as this regime, with an expression of profound gratitude to you, my friends, who have made this occasion possible. But while I am both grateful and proud, I am not unmindful of the Herculean task that lies ahead. There is much to be done, and it will be done in direct proportion to the number of men in this organization who will put their shoulders to the task and say "I will accept the challenge; I will do my share to keep my country and my profession free."

When I look about me and see such eminent names as O. N. Bryan, Nat Shofner, L. W. Edwards, Cal Chaney, H. W. Qualls, Jim Stanford, Hiram Laws, Kyle Copenhagen, my immediate predecessor and many others that time alone prevents me from mentioning, I realize that I have stepped into some big shoes, and I assure you that I am going to lean heavily upon these men for guidance during the next twelve months.

The TSMA has made some wonderful strides during the past 10 years. We have sponsored voluntary health insurance and now have 267,000 people who are insured against surgical, obstetrical and orthopedic catastrophies through our own voluntary health insurance, and it is hoped that the

Dr. Kelly's first Presidential message for the JOURNAL, following, is a publication of his vigorous message to the 116th Annual Session of the TSMA, April 10, 1951. EDITOR.

benefits will soon be extended to include "in hospital" medical cases. The Essay Contest, also sponsored by this Society during the past two years, has done much towards bringing to the people of this state a greater appreciation of what the medical profession has done and is doing. But there are still many things that can and must be done if we are to convince the Government planners that their's is a lost cause.

I. *We must be united as we have never been united before.* We must as individuals be willing to do our part in the fight to keep medicine free. I believe that each and every one of us should pay our dues to the A.M.A. Not only is the money needed to help combat the many fallacies that are fostered by the Ewings, the Murrys, the Wagners, and the Dingles, but a united front is even more important. One may not agree that these dues were necessary or advisable, but they were assessed by our representatives in the most democratic organization in the world, the A.M.A. For every 1,000 doctors practicing in the United States there is one delegate to the policy making body of the A.M.A., whereas it takes about 250,000 individual citizens to have a representative in the lower house of Congress.

Let us not for a moment lose sight of the fact that should we lose this fight—and believe me it's not won—we will pay more and agree less when Oscar Ewing begins to write the rules! Don't let him divide and conquer us. Pay your dues. Pay them smilingly if you can, but pay them, and make your contribution to a free America. Without unity we can achieve little, and without achievement, there is little justification for our existence.

II. I would like to see the expression "high cost of medical care" differentiated in the minds of the people from the "high cost of being sick." There is a big differ-



ence. You know and I know that only a small percent of what the patient spends when he is sick goes to the physician. Prices have risen 13% since Korea, I am told, and in many instances 200% since Roosevelt. Office rent, office help and office supplies have more than doubled in the past 12 years, and yet doctors' fees have increased little if any. On the other hand, the advancement made by free medicine during these same years has made it possible for the individual to greatly reduce the cost of being sick. For instance, 10 years ago the average appendectomy patient spent from 10 to 14 days in the hospital. Now he spends from 3 to 5. The pneumonia patient, with the use of antibiotics and sulfonamides, has had his hospital stay similarly reduced, and so with many other medical and surgical conditions.

III. I would like to see the medical profession take an inventory of its assets and liabilities, and if possible, turn its liabilities into assets or rid itself of them. There was a time when the profession had control of the hospitals and was held responsible by the patients for any and all incidents that took place in the hospital. Today we are still responsible so far as the patient is concerned, but we have little or no voice in the hospital administration. In those days the hospital welcomed the doctor and his patients, but now we too frequently find ourselves humbly beseeching the hospital to accept us and our patients. At a recent meeting of the American College of Surgeons, a resolution to place in the hands of the American Hospital Association, a lay organization, the responsibility of hospital standardization lost by a very narrow margin, and I am sure the issue will come up again. What has been said about hospitals may also be said about anesthetists and nurses. A death occurring in the Operating Room is the surgeon's responsibility even if he hasn't touched the patient. The family most likely never heard of the anesthetist, and all too frequently the surgeon hadn't either until he entered the Operating Room.

Our relationship with the nurses has also changed. We no longer have a choice of nurses. Now, we merely call a central office

and say, "Send me three nurses for Mrs. Jones," and frequently we have three women reporting for duty whom we never saw before, varying in age from 19 to 80 years. All too often we know too little about our nurses when we turn our patient over to them, and yet we are both morally and legally bound by their conduct when they are attending our patient.

I do not want to be misunderstood. I have no quarrel with the hospital, the nurse or the anesthetist. I know they are all doing a good job under difficult circumstances. I am suggesting, however, that we should let each stand upon its own foundation and assume its own responsibilities to the public.

IV. Another matter that poses a problem for us is the colored physicians of this state. We have a responsibility here that I fear we have not met too well. Our meetings are educational, and I believe should be accessible to every practicing physician in the state. I would like to see us live up to our reputation as the Volunteer State and voluntarily admit the colored physicians to our meetings in order that they may do a better job among their patients. By so doing, we can help them and they can help us, among other ways by swelling our membership and giving us greater representation in the A.M.A. It is better that we do this than have Washington do it for us. Certainly, as I see it, the relationship will be better if it's a voluntary move on our part.

V. I would like to see the Medical Society of this State take the lead and re-dedicate itself to service above self. Let us concern ourselves more with the service we can render and less with the fee we can get. If we are to preserve American medicine, we must preserve our place in the hearts and minds of the people, and this can best be done by the individual doctor in his daily contacts with his patients in their time of trouble. We can all do our part here, but the general practitioner can, and I am sure will, make the greatest contribution.

It is not enough that we keep our doctor and patient relationship on a high plane, but we must keep the closest possible watch on that small group of selfish individuals who would, through greed, by excessive fees

or ruthless inconsideration, nullify the fine work of the profession as a whole. One flagrant over-charge can hurt the cause of free medicine throughout the State! We can and must prevent this by taking a militant and drastic action against the offender, whomever he may be. For so long as people who are acutely ill are turned away for lack of funds, whether it be by a doctor or a hospital, there is going to be a clamor for a change in medical administrations.

I repeat, we need an old time revival in which we can re-affirm our faith in the oft-forgotten creed of service. We need to acknowledge again the priceless heritage

that is ours as American physicians and accept the responsibilities of upholding the tenets and creeds that are as fundamental to the survival of medicine as the Constitution is to our Government, or the Ten Commandments to our religion. In other words, if we are to be free, we must be willing to pay the price, and the price of liberty is eternal vigilance.

*Ernest J. Kelly*



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MAY, 1951

## EDITORIAL

### THE 1951 MEETING

The 116th Annual Session of the Tennessee State Medical Association has passed into history. From a number of viewpoints it was a successful meeting, and many in attendance expressed their satisfaction with the session.

Unfortunately the American College of Physicians held its meeting in St. Louis and the Graduate Surgical Assembly of the Southeastern Surgical Congress was held in Hollywood, Florida simultaneously with the State Association meeting. In spite of these conflicts the 1951 session was attended by more Tennessee physicians than any other annual meeting except one. Total registrations were 642, of which number 570 were physicians, the remainder being made up of exhibitors and State Association office personnel. These registrations were exceeded only by those of the Centennial Meeting in 1934.

Since the Annual Session should represent a means of post-graduate instruction, we used a plan to learn what the man in general practice would like to hear and then

chose essayists fitted to present the subject. We believe this resulted in the program which pleased many.

The best time to offer constructive criticism is before recollections become hazy. Therefore your Editor and Chairman of the Committee on Scientific Work begs that those who attended the meeting offer their criticisms now. *So please let us hear from the membership now!*

R. H. K.



### SURGICAL ATTACK UPON MITRAL STENOSIS

Of the common forms of heart disease eventually ending in death, rheumatic heart disease is the most difficult for the physician from an emotional viewpoint. The person with hypertensive or arteriosclerotic heart disease usually has had enough of life to have accomplished certain ends, to have raised a family and possibly to have accumulated a modicum of world assets. His death can be accepted more philosophically. But rheumatic heart disease, and especially the more frequent, mitral stenosis, is a different story. The cyanotic, orthopneic man or woman in his third decade of life, with frequent hemoptyses, presents a most pathetic picture. By the bedside stands the anxious and distressed partner in marriage with children only partially grown,—a few worldly possessions still to be paid for, and plans and hopes to be shattered by death.

This human appeal plus the cold scientific fact that the myocardium is young and has a good blood supply has made physicians dream of attacking the mechanical valvular deformity. If this were possible one might be successful in reducing the burden on the heart and lungs, and at least in adding to the span of life so that plans and hopes might at least be partially accomplished.

As long ago as 1902, the English physician Brunton speculated upon the possibility of a surgical attack upon the rigid mitral valves.

In 1923 Elliott Cutler, after experimentation on dogs, cut the mitral valve via the ventricular route. He was successful in this first patient, an 11 year old girl, who lived for four and a half years thereafter. After two more attempts, followed

by immediate post-operative deaths, he developed a valvulotome. With this he punched out a section of the rigid stenotic mitral valve. Two patients were operated upon with this instrument via the ventricle in 1924. They survived 3 and 6 days post-operatively. In 1929 he made the attempt through the auricle, the patient dying 3 hours later. It is significant that an English surgeon in 1925 tried finger dilatation of the stenotic valve through the auricle. Since the valve easily admitted the finger he accomplished little, but the patient survived.

From 1929 to 1945 work was largely experimental.

Because it was observed in Lutembacher's syndrome (mitral stenosis in the presence of an interauricular septal defect) that the course of mitral stenotic disease was more benign, Harpen and Bailey produced interauricular defects in humans. Sweet developed a shunt-type of operation. By anastomosing a pulmonary vein with the azygos vein, the pressure in the pulmonary circulation is decreased and thereby leads to improvement in dyspnea, decreased hemoptysis and, more importantly, at least delay in the irreversible pulmonary changes in terms of fibrosis and attendant impaired aeration. However, the basic pathology is not altered by this procedure.

Bailey of Philadelphia and others have renewed the attack on the diseased valve itself. The newer methods consist in the main of overcoming the stenosis by either cutting the valve in the line of its commissures or by fracturing or breaking the tough stenotic valve by the finger, the tear thereby following the line of the commissures. In either procedure the finger is inserted through the auricular appendage and the manipulations carried out by the finger itself or with a knife attached to it. There is a minimal loss of blood.

The advantages of such an attack over that of the valvulotome used in the past is that though the stenosis is destroyed a free mitral regurgitation is not suddenly established. The development of an insufficiency by punching out a segment of valve

led to death by heart failure in those patients who survived such an operation.

No one group of investigators has had sufficient experience as yet to evaluate these recent attacks upon the stenotic valve. Yet it seems that the operation in selected cases will be attended by a relatively low mortality rate. (The operation has been done in well over 50 cases since 1945.) Furthermore, it appears that the line of incision or fracture heals without reproducing stenosis. The cardiac physiologists bear out the clinical results in their studies carried out by cardiac catheterization and by other means. Thus it has been shown that increased cardiac output due to increased stroke volume has resulted from this treatment, accompanied by a significant reduction of the pulmonary hypertension.

Here, then, is a field in which the medical profession should have hope of adding possibly years to the life of an otherwise doomed person. The doctor must therefore acquaint himself with the selection of the proper cases. The patient found to have asymptomatic or non-progressing mitral stenosis incidental to a physical examination is not a candidate at that moment for a surgical attack. Nor is the patient in the final stages of the disease, having frequent hemoptysis, intractable cardiac failure and especially with irreversible pulmonary changes, one to be selected for operation. It is rather the patient in between, the one showing a progressive course with dyspnea, edema and his first or beginning hemoptysis, who is to be chosen for operation, provided he has no other valvular disease nor significant mitral regurgitation as an accompaniment. Here, until the indications are more certainly established, the cardiac physiologist can offer diagnostic aid by his studies. By catheterization if it can be shown that the pulmonary artery pressure is in excess of 50 mm. of Hg., or the pulmonary venous pressure is more than 35 mm. of Hg., the patient faces almost certainly pulmonary edema and progressive vascular and myocardial damage.

The family physician must follow the developments in the field of surgery of the mitral valve with close attention. He is the one who will be responsible for getting



the patient with mitral stenosis into the hands of those who are so situated that they may study the case and make a decision for or against surgery. The extension of the patient's life, then, is in most instances in the hands of the family doctor.

R. H. K.



### THE INDEPENDENT'S INCOME TAX

The month of March always serves to highlight the inequities of the income tax for the professional man.

By law, any funds set aside for pensions or profit sharing trusts by a company for its employees are tax exempt. The employee does not pay on these funds until he receives them upon retirement or upon cashing them in. Thus, of the professional men, only the salaried ones can postpone income taxes on such savings to a time when the income will be lower. The independent professional man must pay a greater total of lifetime income taxes than any other person of comparable income because the payments are "bunched" in a relatively small number of peak earning years.

It is carefully estimated that the cost of a medical education up to the time of entering practice is \$35,000. This investment must be amortized, by annual installments, before the young physician is on the same footing as his high school classmate who took a position with a company. If a \$35,000 endowment policy taken out at age 26 years and payable at age 65 is taken as a basis for amortization, the premium, the interest on the \$35,000 invested for an education and the increased income taxes on a bracket basis would approach \$5,000 a year.<sup>1</sup> For a physician then, it would be fair to set aside the first \$5,000 of gross income in order to compare his financial status with one whose earnings begin at age 18.

In 1942, the tax advisor to the Secretary of the Treasury suggested before Congress that \$7,500 annually was a reasonable amount for pensions financed through tax-

free gross income. (This should be more now because of inflation.) But nothing was done then nor since then in eliminating tax discrimination.

Possibly nothing has been done for a reason. History has shown clearly how "statism" becomes established, be it a Fascist, Nazi, Communistic or Socialistic State. Those in lower economic levels are provided for by law (as in Social Security). Those very few wealthy persons are controlled by law (disproportionate pensions by companies being limited by law). The great middle-class, made up of the scientist, professional man, independent storekeeper, and farmer, so essential to the State, are allowed to be so squeezed by taxes and government that they finally capitulate to the pressures of Statism and join with it in desperation for survival. *The Socialistic State, by whatever name, is established only when the freedom loving middle class has capitulated through economic defeat.*

Of the independents, the physician feels the discrimination in income taxes more only because he has a few peak years of higher income and thus pays a disproportionate amount in taxes. The independent farmer or storekeeper spreads it over a longer period of years. On the basis of present day trends, and viewing it historically, your editor doubts that any amelioration will be provided for the independent middle class core so essential to this country nor, more specifically, for the physician with his peculiar economic pattern.

R. H. K.



### COMMERCIAL EXHIBITS AT THE MEDICAL CONVENTION

The meetings of the state medical associations have for decades had as an integral part, the exhibits of companies providing pharmaceuticals, instruments, books and the like to the medical profession. Each has had a need for the other. Frankly, a portion of the expense of the state meetings has been covered by income from space rented to the exhibitor. On the other hand, the exhibitor has had an opportunity to get his product before the physician, prob-

<sup>1</sup>Dickinson, F. G., *Income Tax Discrimination Against the Professions*, J. A. M. A., 142:1357, 1950.

ably more successfully than on a visit to a busy doctor's office.

The pattern has not changed in many years. The doctor registers at the exhibitor's booth and receives booklets, samples and some sales talk. Recently, a new thought has been interjected into this static formula.<sup>1</sup> The author of this idea, an official of one of the pharmaceutical houses, urges that exhibitors make their booth one for instruction rather than providing what he calls a "County Fair Atmosphere." It strikes your editor that this new viewpoint deserves thought and further exploration.

It is apparent that the Scientific Exhibits at the annual meeting of the American Medical Association offer one of the main attractions for the visiting physician. This area is constantly crowded and one observes that the visitor commonly devotes more than a casual glance to the exhibit. The cost of the technical exhibit to the exhibitor or the agency he represents precludes its use at state meetings.

Here, as was suggested, the pharmaceutical house could make a scientific contribution. Over the past two decades the ethical pharmaceutical houses have taken an increasingly active part in research, both in the field of diagnosis and therapeutics. Well trained scientists are in the employ of these companies. These concerns have the money to set up educational exhibits, the illustrators to utilize to the fullest visual aids, and acceptable products to be described. Honest portrayal of uses, effectiveness and hazards of pharmaceutical products could offer excellent post-graduate instruction to the physician-visitor with a minimum of "advertising." Booklets might be handed to the visitor to further or recapitulate the instruction. (The samples may be left with the doctor in his office at a later date by the detail man.)

This editor for one hopes that a trial of this type of exhibit will be extended to the state medical and other meetings of the smaller type at least.

R. H. K.

<sup>1</sup>Fossel, S. M., One Company's Solution to the Convention Problem, Medical Marketing, Sept., 1950.

## WHAT'S NEW IN MEDICINE

### Relation of Sodium Chloride Depletion to Urine Excretion and Water Intoxication

Much attention has been given in late years to the helpful effects of diets low in sodium chloride in the management of cardiac failure and in hypertension. Attention has been called to the deleterious effects of mercurial diuretics in some patients as the result of salt loss,—a picture of renal failure described as the "low salt syndrome."<sup>1</sup>

Bristol (Am. J. M. Sc., 221:412, 1951) studied the effect of sodium depletion in dogs and rats. Sodium depletion was accomplished by the intraperitoneal injection of glucose and later paracentesis. Following this the animals were kept on a low sodium diet. Hydration studies were done before and after the sodium depletion.

With serum sodium depression water excretion was definitely decreased even to one-third that excreted at a time when the serum sodium was normal. During the low level of serum sodium the dogs showed anorexia. With hydration the dogs developed nausea, vomiting, fibrillary twitchings, muscular irritability, convulsions and death if salt was not given. Urinary excretion decreased as the serum sodium levels were depressed.

This experimental work substantiates the case reports beginning to appear, wherein water retention occurs in patients with cardiac failure, following treatment by low sodium diets and resultant low serum sodium concentrations.



### Confusing Aspects of Infectious Mononucleosis

The diagnostic characteristics of this disease have been considered to be enlargement of lymph nodes, abnormal lymphocytes in the blood and the heterophile agglutination. The clinical picture in terms of symptomatology and signs has been varied.

<sup>1</sup>Editorial—Mercurial Diuretics, J. Tennessee M. A., 43:373, 1950.



Goldthwait and Eliot (*Am. J. M. Sc.*, 221: 264, 1951) report a study on 26 men aged 19 to 35 years, studied in an Army detail in Canada. (A scientific study entailed in this group accounts for the finding of abnormal cells in blood smears.) At some time all of the group showed the abnormal cells in the blood smears, though 21 of the 26 were classified as sub-clinical cases. Only 5 had symptoms of lymphadenopathy, fatigue, fever and one or two other signs. Abnormal cells were present in the blood smears of the 5 clinical cases for from 30 to 131 days before the onset of symptoms.

Only one of the 26 cases showed a positive heterophile agglutination. The authors point out that infectious mononucleosis as a well defined entity must await knowledge concerning the etiologic agent.



### Radiation Effect on Preimplantation Stages of the Mouse Embryo

This study by Russell and Russell (*Anat. Rec.*, 108:521, 1950) showed that irradiation of the female in the preimplantation or cleavage stage was associated with a high prenatal mortality, but with a very small number of abnormalities in the animals surviving to term.

Inbred females having received 200 r at  $\frac{1}{2}$ ,  $1\frac{1}{2}$ ,  $2\frac{1}{2}$ ,  $3\frac{1}{2}$  and  $4\frac{1}{2}$  days after mating were dissected  $10\frac{1}{2}$  or  $13\frac{1}{2}$  days after mating. A control female was dissected also in each instance. A total of 831 embryos or resorbing bodies were studied.

The average number of living embryos in the irradiated females as compared to the controls is 20% in those irradiated at  $\frac{1}{2}$ ,  $1\frac{1}{2}$ ,  $2\frac{1}{2}$  days, 31% for  $3\frac{1}{2}$  days, 57% for  $4\frac{1}{2}$  days. In those radiated  $2\frac{1}{2}$  days after mating, 81% of the reduction in live embryos was due to death after implantation, also true in 53% of those irradiated at  $3\frac{1}{2}$  days. In those irradiated at  $\frac{1}{2}$ ,  $1\frac{1}{2}$ , and  $4\frac{1}{2}$  days after mating 71, 71 and 75% of embryo deaths occurred before implantation. Postimplantation death occurs before  $10\frac{1}{2}$  days after mating.

## DEATHS

**Dr. Emmett Gattis**, retired Franklin County physician, died March 29, 1951. Aged 76.



**Dr. J. W. Cox**, Director of the local Health Units of Anderson, Scott, and Morgan counties, died March 22, 1951. His death was attributed to a heart attack. Aged 41.



**Dr. J. B. Fisher**, who had practiced medicine in Memphis for more than fifty years, died April 6, 1951, following more than a month's serious illness. Aged 77.

## PROGRAMS AND NEWS OF MEDICAL SOCIETIES

Sixteen Tennessee physicians attended the 14th Annual Meeting of the New Orleans Graduate Medical Assembly March 5-8, the Secretary reported to the *JOURNAL*.

Those who registered were: Drs. Wm. R. Arrants, Athens; Marshall Brucer, Oak Ridge; Frederick Eberson, Memphis; E. E. Edwards, McKenzie; John E. Frazier, Chattanooga; J. T. Gordon, Lewisburg; C. Fred Hoffman, Memphis; R. C. Kimbrough, Madisonville; Clarence B. Landham, Chattanooga; C. B. Laughlin, Greeneville; Hyman Leiber, Mt. Home; J. A. McQuiston, Memphis; F. E. Marsh, Chattanooga; C. R. Mason, Memphis; C. R. Mason, Jr., Memphis; John H. Tilley, Lebanon.



### Nashville Academy of Medicine

Executive Secretary Jack Ballentine reports that the American Medical Association has adopted the Press and Radio Code of the Nashville Academy as a pattern for use on a national basis by other state associations and component societies.

The Public Relations Department of the AMA has requested 150 copies of the Code for distribution in the "PR Doctor."

The Code has been recommended for adoption by the Syracuse, New York Medical Society and the Washington State Medical Association has intimated adoption of a similar Code. The Nashville Academy Code is now in operation locally which assures the public of accurate, authentic medical news.

★

Dr. Oscar Hauk, Superintendent of Central State Hospital, Nashville, was host to the Nashville Academy of Medicine at the usual excellent dinner he provides. Dr. James Ward presented a paper on electroencephalography.

★

"Public Health in Davidson County" was the subject discussed by Doctors John J. Lentz and Volney Woodring of the Davidson County and Nashville City Health Departments respectively, at the April 3 meeting of the Nashville Academy of Medicine.

★

### Robertson County Medical Society

Dr. Fontaine Moore, Nashville, read a paper on "Cancer of the Prostate" before the Robertson County Medical Society at Springfield on Tuesday, April 3. The dinner meeting was held at the local hospital.

★

### Upper Cumberland Society Meets

The Upper Cumberland Medical Society will meet at Red Boiling Springs, June 26-27. L. M. Freeman, Granville, is the Secretary.

★

### Anderson-Campbell Society

The Anderson-Campbell Medical Society held its regular monthly meeting March 29. Dr. L. J. Seargeant was elected an alternate-delegate to the TSMA. Dr. Roscoe C. Pryse is the Secretary.

★

### Memphis and Shelby County Medical Society

This society, the largest local society in Tennessee, held its regular meetings on

March 6 and 20. At the March 6 meeting, Dr. Morton T. Tendler read a paper on "Congenital Stenosis of the Ileum," and Dr. Fox Miller read a paper on "Contact Dermatitis." At the March 20 meeting, Dr. Dan Brody gave a case report on "Acute Congestive Failure in Rheumatic Heart Disease Apparently Precipitated by Impending Menstruation." Dr. Jack Goltman read a paper on "Penicillin Reactions, Mechanism of Sensitization, and Treatment." Five applications for membership were referred to the Credentials Committee.

★

### Knoxville Academy of Medicine

The Knoxville Academy announces that every member (active) of that society has paid State and AMA dues. This 100% performance is worthy of the highest commendation. The Knoxville Academy is by far the largest society in Tennessee to have a 100% AMA dues-paying record.

★

The Knoxville Academy of Medicine heard a discussion on "Trans-Thoracic Approach to Upper Abdominal Lesions" by Dr. Herbert Acuff on March 20. On April 17 Dr. Henry Christian presented the subject of "Congenital Heart Conditions Amenable to Surgery."

★

The Nashville Society of Internal Medicine had as its annual guest speaker, Dr. Paul Beeson, Professor of Medicine at Emory University Medical School, on March 6. This provided a meeting for the Nashville Academy of Medicine.

## MEDICAL NEWS IN TENNESSEE

The University of Tennessee College of Medicine will begin increasing its enrollment from 140 new students a year to 200, beginning with the September quarter. Fifty new students will be admitted this Fall instead of thirty-five. The increase of 15 new students follows a \$4,800,000 bond authorization measure, and increased oper-



ating funds of \$400,000 annually, approved by Governor Browning and the Tennessee Legislature, to increase facilities at the University of Tennessee Medical Units. (Funds for the expansion were provided in an effort to increase the number of physicians in Tennessee, particularly in rural areas.)

The 15 additional students already have been selected from a group of 84 whose applications were deferred last January, when 35 students were selected for the Fall quarter section.

## PERSONAL NEWS

**Dr. E. White Patton** has again been placed on a reserve status by the Navy. He has announced the reopening of his office at 301 Interstate Building, Chattanooga, Tennessee.

**Dr. Lee F. Cayce** was elected Vice-President of the Nashville Civitan Club recently. He and the other new officers will be installed June 5.

**Dr. L. W. Edwards**, Chairman of the Association's Public Service Committee, was elected to the Davidson County Board of Election Commissioners recently. This is another example of how physicians can render significant public service in the interest of better government. A Nashville newspaper observed that Dr. Edwards "is of such high caliber that the Board's actions would be entirely on a non-partisan basis."

**Dr. N. S. Shofner**, Nashville, read a paper before the Southeastern Surgical Conference on "Malignant Tumors of the Thyroid Gland" last month. The Conference, meeting in Hollywood, Fla., attracted 750 physicians. Other Tennessee physicians attending were: **Dr. R. L. Sanders**, Memphis; **Dr. Kyle Copenhaver**, Knoxville; **Dr. Travis Martin**, Nashville; **Dr. Ray Fessey**, Nashville; **Dr. W. G. Rhea**, Paris; and **Drs. W. J. Johnson** and **J. U. Speer**, Pulaski.

The editorial pages of Nashville newspapers have glittered with compliments to FOUR Tennessee physicians within a two-week period:—

**Dr. Daugh W. Smith** was commended editorially upon his election as President-Elect of the Association.

**Dr. E. G. Kelly's** Presidential-Elect Address received commendation in a lengthy editorial.

**Dr. Tom Moore**, Algood, was editorialized as a "symbol of service" upon his selection as Tennessee's Outstanding General Practitioner for 1951.

**Dr. J. Owsley Manier**, Nashville, received editorial recognition "Honors for Dr. Manier" upon his recent election as Regent of the American College of Physicians.

**Drs. R. O. Glenn** and **Paul J. Bundy**, Mountain City, have been named to the initial staff of Johnson City's new Memorial Hospital.

**Dr. M. M. Young**, Kingsport, has been commissioned a senior assistant surgeon in the Public Health Service. He is assigned to the regional office of the PHS in Dallas.

**Dr. M. F. Langston** has moved his offices into his modern, newly equipped clinic building at 817 Palisades Drive, Signal Mountain.

**Dr. John W. Baird** opened his office in the Exchange Building, Memphis, in January. Dr. Baird received his training in Dermatology at the University of Illinois, and at the Boston City Hospital.

**Dr. A. B. Shipley**, East Tennessee Regional PHD Director, scored Bradley County Judge H. M. Fulbright in a public statement for his "stubborn and arbitrary attitude" in refusing to authorize purchase of needed equipment for the County's new Health Center.

**Dr. E. L. Caudill, Sr.**, Elizabethton, attended a joint civilian orientation conference in Washington upon invitation from Defense Secretary Marshall.

**Dr. R. H. Kampmeier**, Secretary-Editor, attended the meeting of the Association of American Physicians in Atlantic City, May 1-2.

## WOMAN'S AUXILIARY

*Mrs. Lynch D. Bennett of Nashville, new President of the Woman's Auxiliary to the Tennessee State Medical Association, opens this section, which will become a News Letter of Auxiliary Activities.*

"Greetings, Doctors' Wives of Tennessee:

"The Board of Trustees of the TSMA has voted to make possible the publication and circulation of this news letter to you. It will be issued quarterly with a two-fold purpose: 1) to keep the membership informed, and 2) to stimulate interest among those of you who are not affiliated with any auxiliary.

"We now have nine auxiliaries covering 39 counties and we have members at large in 15 other counties where there is no auxiliary. Our state Constitution for membership for you in any auxiliary near you and you would be welcome by them as a visitor or in an active status.

"Any news, suggestions or comments regarding this, our latest venture, would be happily received by your Board. Won't you let us hear from you?

"Mrs. Arthur Herold, our National President, answered the question: 'What Can I Do' so well in her address at our Annual State Meeting, that I would like you to read excerpts from this. They follow."

### Quoting Mrs. Herold

"The cause for which you are working must seem right and important or you will not be successful . . ."

"We must form groups to study Civil Defense so we can help ourselves as well as others overcome this deadly fear . . . of the unknown."

"It is necessary that you all study what is happening in Washington . . . some very vicious work is being cleverly included in so-called defense bills . . . do not be a pressure group but also do not adopt a defeatist attitude for if you do you will meet with defeat."

"One of our best talking points is of course Voluntary Health Insurance Plans . . . they have made remarkable progress

in the last four or five years, but so few people are cognizant of this fact."

"The White House Conference is now history, but for some time to come you will hear repercussions from it . . . read Dr. Dukelow's article (on the Conference) in the March issue of 'Today's Health'."

"There is so much that can be done in the rural areas and it is a fertile field for us . . . this group needs your help and I hope many of you will see your way to offer it."

"As the Korean War progresses, the shortage of nurses becomes more acute and we should leave no stone unturned to assist in recruiting nurses."

"Public Relations is always with us and its importance seems to increase rather than to decrease."

"In his article in the March Bulletin, Dr. Austin Smith (of AMA) suggested that we develop a two-way highway going to and from our medical society. This, I feel, is a valuable suggestion, for our men need information regarding what we are doing and suggestions from us almost as badly as we need it from them."

"The National Auxiliary never orders a State Auxiliary to follow any program; it merely makes suggestions. Therefore, on the local and state auxiliaries rests the implementation of all worthwhile programs and projects in the last analysis. On you rests the success or failure of not only your own county and state organization, but in no small degree that of your national auxiliary."

### Mrs. Pentecost Reports

This section is indebted to Mrs. Ben Lyal Pentecost of Memphis, retiring recording secretary of the State Auxiliary, for a comprehensive report on the business and elections of the Annual Session held in the Noel Hotel, Nashville, last month.

Mrs. Park Niceley, in her usual smooth job of presiding, kept the meetings going with dispatch. As retiring State President, her final message is found at the close of this section.

April 9, the Directors lunched in the Cabin by the Spring at the Hermitage, home of Andrew Jackson. Honor guests were Mrs. Herold, Mrs. L. S. Thompson,



President of the Woman's Auxiliary to the Southern Medical Association, and Mrs. A. J. McClary of Green Bay, Wisconsin, wife of a visiting physician. A business session followed the luncheon. Twenty-seven Board members attended.

Reports came from the Treasurer, Regional Vice-Presidents, Directors, Chairmen of Standing Committees, and the nine county presidents.

The tentative budget was submitted and agreed upon. A nominating committee was appointed, composed of Mrs. N. O. Nelson, of Nashville, chairman; Mrs. M. W. Holehan and Mrs. Frank Hobbs of Chattanooga, Mrs. Will Cate, Nashville, and Mrs. H. B. Everett of Memphis. Plans were completed for the general meeting next day and Mrs. Lynch Bennett of Nashville, President-elect, announced the program.

Monday evening, Board members held an after-dinner forum. Mrs. Roland Myers, of Memphis, alert and effective Public Relations Chairman, led a discussion of methods of forwarding the PR Program in the State. Plans for the Bulletin, and for "Today's Health," and for legislation also were discussed.

Mrs. Niceley opened the General Session at 9 a.m. April 10, in the Ballroom of the Noel. After invocation by the Rev. Peyton R. Williams, Christ Episcopal Church, Nashville, Mrs. A. B. Scoville, Jr. of Nashville welcomed the delegates. Mrs. Ernest G. Kelly of Memphis responded. Mrs. Jack Thompson of Jackson led the pledge of allegiance.

Mrs. R. H. Kampmeier of Nashville introduced her convention arrangements committees: Mrs. Herbert Francis, Mrs. Joseph Anderson, Mrs. David Hailey, Mrs. Robert McCracken, Mrs. W. W. Wilkerson, Mrs. W. G. Kennon, Jr., Mrs. Sam Prevo and Mrs. George Carpenter.

Present were 26 delegates, five alternates, 27 board members, five members-at-large, 33 members and four guests, a total of 104 persons.

Mrs. Niceley reported on the year's work. She previously had been the first Auxiliary President to make the report to the House of Delegates of the Association on Monday morning.

Mrs. George Tharp of Knoxville, regional vice-president for East Tennessee, announced the formation of the Green County Auxiliary, with Mrs. L. E. Dyer president. Nine members-at-large had been secured from East Tennessee.

In the absence of Mrs. James Kirtley of Nashville, regional vice-president for Middle Tennessee, Mrs. Bennett announced the formation of the Five-County Auxiliary, with Mrs. Fred Terry of Cookeville, president.

Mrs. Carrol Turner of Memphis, regional vice-president for West Tennessee, reported one member-at-large enrolled for her section during the year.

The Auxiliary in Tennessee now has 813 members. The TSMA has 1,985 members.

The Historian, Mrs. Charles C. Trabue IV, of Nashville, read a summary of the work done through the War period so far and brought the scrapbook, up to date.

Mrs. W. W. Potter, National Director, reported on the meeting of the Woman's Auxiliary to the AMA, held in San Francisco, June, 1950.

Mrs. Roland Myers, Public Relations Chairman, reported that all county auxiliaries had been active in this work during the year. She urged that all Auxiliaries have a Public Relations Program and that every member support any fight against Socialization in any field.

Mrs. W. O. Baird, Chairman of "Today's Health" reported: 8—3 year subscriptions; 9—2 year subscriptions; 332—1 year subscriptions; 110—6 month subscriptions; 72—student plan subscriptions.

Mrs. Joseph Anderson, Bulletin Chairman, reported 135 subscriptions to the Bulletin.

Mrs. Frank Owings of Johnson City announced that the winner of the Essay Contest is Altha Jane Turner, of the Rule Jr.-Sr. High School of Knoxville. There were 3,355 essays submitted.

Reports were read by the following County Auxiliary Presidents:

Mrs. Sam S. Lambert, Blount County; Mrs. A. B. Scoville, Jr., Davidson County; Mrs. Fred Terry, Five County; Mrs. L. E. Dyer, Greene County; Mrs. H. David Hickey, Hamilton County; Mrs. Herbert

Acuff, in the absence of Mrs. Joel C. Morris, Knox County; Mrs. George Burkle, Shelby County; Mrs. E. T. Pearson, Tri-County; Mrs. Roy A. Douglass, West Tennessee Consolidated.

Mrs. Lynch Bennett reported on the Fall Conference of Presidents and Presidents-elect, and Mrs. J. Frank Hobbs, made a report on the Woman's Auxiliary to the AMA.

The President of the Woman's Auxiliary to the Southern Medical Association, Mrs. L. S. Thompson, asked for cooperation from the Tennessee Auxiliary in the three programs, Jane Todd Crawford Memorial Fund, Research and Romance and Doctors Day.

The Board recommended that \$10.00 be given the Jane Todd Crawford Memorial Fund. It was moved, seconded and carried that such a contribution be made. The tentative budget for the coming year was read and upon the recommendation of the Board was accepted.

The following new officers and Committee Chairmen were chosen for the year 1951-1952:

President—Mrs. Lynch Bennett, Nashville  
President-elect—Mrs. Jewell Dorris, Memphis

Regional Vice-President—Mrs. Sam Prevo, Nashville

Regional Vice-President—Mrs. W. O. Baird, Henderson

Regional Vice-President — Mrs. George Tharp, Knoxville

Recording Secretary—Mrs. H. L. Monroe, Erwin

Corresponding Secretary—Mrs. Chas. C. Trabue, IV, Nashville

Treasurer—Mrs. W. O. Tirrill, Nashville

Historian—Mrs. Ernest G. Kelly, Memphis

Parliamentarian—Mrs. O. G. Nelson, Nashville

Director 2 Years—Mrs. John Youmans, Nashville

Director 2 Years—Mrs. Carrol C. Turner, Memphis

Director 2 Years—Mrs. Park Niceley, Knoxville

Director 1 Year—Mrs. A. T. Hall, Lebanon

Director 1 Year—Mrs. Clyde Crosswell, Memphis

Director 1 Year—Mrs. Russell Hackney, Chattanooga

Program—Mrs. A. B. Scoville, Jr., Nashville

Public Relations—Mrs. H. David Hickey, Chattanooga

Press and Publicity—Mrs. E. E. Wilkinson, Nashville

Today's Health—Mrs. Lea Callaway, Maryville

Legislation—Mrs. J. A. Kirtley, Nashville

Organization—Mrs. Jewell M. Dorris, Memphis

Finance—Mrs. Harry J. Jacobson, Memphis

Revisions—Mrs. Bass Cowles, Greeneville

Bulletin—Mrs. Charles W. Miller, Jr., Memphis

Archives—Mrs. Thomas Frist, Nashville

Health Essay—Mrs. C. B. Roberts, Sparta

Mrs. A. A. Herold installed the new officers. A resolution thanking the Nashville Auxiliary for its hospitality was read by Mrs. C. B. Roberts. Mrs. O. E. Ballou of Knoxville conducted a memorial service for the deceased members.

The following delegates and alternates were elected for the Woman's Auxiliary to the AMA, to be held in Atlantic City, June 11-15, 1951.

Delegates—Mrs. Park Niceley, Mrs. H. E. Christenberry, Mrs. D. C. Nelson, Mrs. Elisha Farrow, Mrs. Harry Jacobson, Mrs. W. C. Crowder, Mrs. W. W. Potter, Mrs. W. O. Baird.

Alternates—Mrs. A. B. Scoville, Jr., Mrs. E. G. Kelly, Mrs. Ralph Hamilton, Mrs. Roy Douglass, Mrs. Herbert Acuff.

Following the meeting, a luncheon was held in the Ballroom of the Noel Hotel. During luncheon, a fashion show was presented by Grace's Ladies Shop of Nashville.

#### "Adieu"

"It is with mingled feelings that I pass on the gavel to the new President. It has been a thrilling and wonderful year. To have met and worked with so many fine ladies for the cause of medicine, is a pleasure and an honor which one can never forget.

"From present indications the coming months will be ones disturbed by national



and international problems more serious than ever faced before by our United States. I am confident that we as Doctors' wives will have many requests and demands made upon us, and that we shall fully and freely give of ourselves to our County and State Auxiliaries in whatever manner will be required of us.

"Words are difficult to find to express to all of you who have done so much to make this year a happy one for me and a most bountiful one for our Auxiliary. I can only ask that you give our New President the same fine support that you have given me.

MRS. PARK NICELEY

## ANNOUNCEMENTS

The April, and first issue of a new medical journal, ANTIBIOTICS AND CHEMOTHERAPY has reached the hands of the Editor of the JOURNAL of the Tennessee State Medical Association. This is published by the Washington Institute of Medicine, 667 Madison Avenue, New York 21, N. Y.

The editorship of this new journal is in the hands of Henry Welch, Ph.D., Director of the Division of Antibiotics, Food and Drug Administration. He is assisted by an Editorial Board containing names of many men known in the field of chemotherapeutics such as: Keefer, Henshaw, Kendall, Long, Waksman, Zandek, Dowling, Eagle, Finland, Moore, Spink, Wood, Woodward and others.

It is said this is to be a Journal of Experimental and Clinical Studies on Antibiotics, Hormones and Chemotherapeutics. Price \$10 per year.

Due to recent illness, Dr. Bate Dozier, offers for sale his clinic building, of 15 rooms with elevator, located at 627 Woodland Street, Nashville. Anyone interested may contact Mr. Franklin M. Vess, 108 Second Avenue North, Nashville, Tennessee.

★

### Coming Medical Meetings

Upper Cumberland Medical Society meets June 26-27 at Red Boiling Springs.

Middle Tennessee Medical Association meets at Cookeville, May 17.

The American Goiter Association meets May 24-25-26 in Columbus, Ohio, with headquarters at the Deshler-Wallick Hotel.

The 36th annual meeting of the American Association of Industrial Physicians and Surgeons will be held at the Chalfonte-Haddon Hall, Atlantic City, April 21-28.

The University of Michigan announces its Fourth Annual Conference on Aging to be held in Ann Arbor, July 11-13. Further information is available from Dr. Wilma Donahue, Room 1510, Rackham Building, Ann Arbor, Mich.

The Third Annual Convention of The International Academy of Proctology will be held at The Mayflower in Atlantic City, N. J., on June 7, 8, 1951.

Further information concerning the convention and a copy of the program may be obtained by writing to the secretary, Dr. Alfred J. Cantor, International Academy of Proctology, 1819 Broadway, New York 23, N. Y.

★

Dr. C. B. Tucker announces that the office of the State Licensing Board for Healing Arts has been moved from 419 Seventh Avenue, North, to 2012 Broadway in Nashville.



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**Albert J. Crevello, M.D.**

Diplomate, American Board of Psychiatry and Neurology, Inc., Medical Director

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 A. H. Lancaster, Knoxville (1953)  
 Ralph H. Monger, Knoxville (1954)  
 John Walter Oursler, Humboldt (1952)

## Legislative and Public Policy

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 Frank Harris, Chattanooga (1952)  
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 R. B. Wood, Knoxville (1953)

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 Harold Boyd, Memphis  
 Carrol Turner, Memphis  
 Bart N. White, Murfreesboro  
 John B. Youmans, Nashville

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 Ralph H. Monger, Knoxville (1952)  
 R. L. Sanders, Memphis (1954)

## General Practice

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 Estill L. Caudill, Jr., Elizabethton

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 Thurman Shipley, Cookeville (1953)  
 W. K. Owen, Pulaski (1952)  
 W. N. Cook, Columbia (1954)  
 J. R. Thompson, Jr., Jackson (1953)  
 Paul Baird, Dyersburg (1952)  
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J. O. Manier, Nashville (1953)  
 C. B. Roberts, Sparta (1952)  
 W. C. Chaney, Memphis (1954)  
 R. B. Wood, Knoxville (1953)  
 J. Marsh Frere, Chattanooga (1952)

## Executive Subcommittee

L. W. Edwards, Nashville (1954)  
 J. O. Manier, Nashville (1953)  
 Charles C. Trabue IV, Nashville (1952)

## Liaison Committee to the United Mine Workers of America

Herbert Acuff, Chairman, Knoxville (1952)  
 Cecil E. Newell, Chattanooga (1953)  
 J. S. Hall, Clinton (1954)

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 W. W. Potter, Knoxville  
 Moore J. Smith, Jr., Chattanooga

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 Kyle C. Copenhaver, Knoxville  
 W. C. Chaney, Memphis  
 E. G. Kelly, Memphis

## Rural Health Committee

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 Rae B. Gibson, Greeneville (1954)  
 James S. Hall, Clinton (1953)  
 Henry T. Kirby-Smith, Sewanee (1952)  
 Thayer Wilson, Carthage (1954)  
 Frank H. Booher, Lynchburg (1953)  
 James A. Loveless, Gallatin (1952)  
 Hunter Steadman, Henderson (1953)  
 John L. Armstrong, Somerville (1952)  
 J. T. Carter, Germantown (1954)

## Grievance Committee

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 N. S. Shofner, Nashville (1953)  
 Ralph Monger, Knoxville (1954)

\*Veterans Affairs Committee retained on a stand-by basis.



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# Journal of the Tennessee State Medical Association

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*The doctors' attention has been focused in late years on this frequent disease. It can no longer be considered that infectious hepatitis is a mild disease of passing inconvenience. Homologous serum hepatitis is a danger in all transfusions or injection of blood products.*

## VIRAL HEPATITIS—DIAGNOSIS AND TREATMENT\*

LAMB B. MYHR, M.D.† Jackson, Tenn.

Viral hepatitis constitutes one of the major problems in infectious diseases. During World War II, as in many previous wars, viral hepatitis was a major problem among military personnel. In the armed forces of the United States alone, there were at least 230,000 cases between 1942 and 1946. Psychoneurosis was the only medical condition which accounted for a larger number of casualties. It is believed that there was also an increased incidence of this disease among the civilians in the United States and Europe during and since World War II. Due to the fact that there were opportunities for investigation afforded by this large number of cases, much has been learned about viral hepatitis and it has become apparent that the disease is a much more serious problem than was generally appreciated before the war. The relatively long duration of the illness and disability, the frequent occurrence of chronic forms of hepatitis, and the possibility of permanent liver damage were not appreciated previous to the study of this large number of cases.<sup>1</sup>

### Etiology and Epidemiology

It is now known that infectious hepatitis, or closely related diseases which have been variously described as homologous serum hepatitis, catarrhal jaundice, epidemic hepatitis, post-vaccinal jaundice, etc., are all due to a filterable virus. In order to clarify the confusion regarding terminology it seems best to follow the suggestion of Neefe and include the entire group under the term

"Virus or Viral Hepatitis."<sup>2</sup> Present evidence indicates that there are at least two separate strains of viruses causing this disease; the infectious hepatitis strain and the homologous serum hepatitis strain. The infectious hepatitis strain is transmitted by human contacts or by contaminated water and food. The incubation period ranges from 14 to 45 days. The virus is present in the blood and stools during the pre-icteric and active phases of the disease. The usual transmission is through the intestinal-oral system, but there is definitely a possibility that respiratory droplet infection may play some part in transmission of this disease. Drinking water, swimming pools, food handlers and personal contact must all be considered as possible modes of transmission of infectious hepatitis. Ordinary chlorination of water may fail to kill the virus.

Homologous serum jaundice may develop from 45 to 120 days after the patient has been injected with human serum which contains the filterable virus. The virus of homologous serum hepatitis has been found only in the blood stream. Infections may follow the administrations of blood and blood products such as transfusions, plasma, convalescent human serum and biologicals containing human serum, such as yellow fever vaccine. This disease may also be transmitted from the contagious donor by the use of needles which have been improperly sterilized. It may appear after the use of syringes which have been used for multiple dose injections and contaminated by aspiration of infected serum as in certain clinics where penicillin, bismuth, vaccines and other biologicals are given by the multiple dose syringe method. Apparently

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homologous serum jaundice is not transmitted to contacts, as there is very little evidence that the virus is present in the stools or nasal secretion. It is important to remember that both types of this disease may be transmitted by the parenteral introduction of contaminated blood products. Only .01 cc. of infected serum is required to produce the disease.

Neither of these strains of viruses can be transmitted to the experimental animal. It appears that these viruses are very closely related but not identical. Havens has demonstrated that patients who have recovered from homologous serum jaundice several months previously could be infected with a strain of the virus of infectious hepatitis.<sup>3</sup>

Seasonal fluctuations in the prevalence of infectious hepatitis have been observed in many different parts of the world. The characteristic trend is for epidemics to occur in the autumn or early winter months with a decline during midwinter. There has been no logical explanation for this seasonal trend.<sup>4</sup>

### Pathology

It has been established by both liver biopsy and autopsy cases that the outstanding pathological feature of the disease is the degeneration of the parenchymal cells of the liver cords. The extent of liver cell necrosis varies with the severity of the disease. In fatal cases normal parenchymal cells are extremely rare. Persistence of histological evidence of disease for at least two months in most cases is of marked clinical importance. It seems to be consistent with the clinical duration of the disease. It is interesting that, in addition to the liver, pathological lesions are found in the lymph-nodes and often in the pancreas, intestinal tract and other organs. As yet no pathological distinctions have been found as between homologous serum hepatitis and infectious hepatitis.

### Symptoms, Signs, and Clinical Course

The onset of acute hepatitis is usually acute and febrile. There may be fever as high as 104 degrees, chilliness and aching muscles. This prodromal or pre-icteric stage may be abrupt or gradual in

onset. It is usually characterized by the following symptoms: anorexia, which is often an important feature in the differential diagnosis, severe malaise, easy fatigability, headache which is often severe and prolonged, chilly sensations, nausea, occasional vomiting, abdominal cramping, soft stools, upper right abdominal discomfort and exhaustion. Less commonly seen during this stage of the disease are urticaria, arthralgia, herpes labialis, somnolence, and rhinitis. After three or four days the fever may disappear but the lassitude and gastrointestinal symptoms usually persist. During this time right upper quadrant aching and tenderness may develop and this is characteristically aggravated by any type of jolting exercise. This prodromal or pre-icteric stage of the disease may last for from five to ten days.

Jaundice may or may not develop. If jaundice develops it is usually accompanied by an exacerbation of the acute symptoms, especially the nausea and vomiting. As jaundice reaches its peak, however, there is often striking improvement in symptoms. The jaundice usually deepens rapidly, and reaches a maximum within a week or ten days and then fades gradually. Jaundice may last only a few days in mild cases, but often persists for six weeks or longer in patients with severe liver damage, or in those who have a marked amount of biliary obstruction. Often a sudden reappearance of appetite and a sense of well being appears while the jaundice is most marked and this may signal the beginning of the recovery period. Although symptomatic recovery may be rather prompt, true clinical recovery is slow. It is known that clinical recovery does not coincide with the disappearance of jaundice but requires an additional two or three weeks more.

The clinical picture of homologous serum hepatitis differs very little from acute infectious hepatitis except that the incubation period is longer, and the onset tends to be more insidious, and fever generally is not high. Differentiation between these two types of hepatitis, however, is of little practical clinical importance.

It is very important to remember that there are many cases of viral hepatitis in which jaundice fails to develop.<sup>5</sup> This type referred to usually as "acute hepatitis without jaundice," is probably as common as the cases with jaundice. Usually recovery is more rapid in patients who do not have jaundice. However, mismanagement of these cases may lead to an increase in severity of the disease and to the development of either jaundice or chronic hepatitis. Many acute cases fail to recover in the usual manner and develop a persistent form of liver disease known as chronic hepatitis. This failure to recover may be due to the fact that patients who have viral hepatitis without jaundice are not considered seriously ill and are often allowed to resume their activity after too short a period of proper treatment.

The essential physical findings in viral hepatitis are as follows:

(1) Jaundice may or may not be present, depending on the type and stage of the disease.

(2) Usually there is enlargement of the liver and liver tenderness, which may be determined by palpation and by jolting fist percussion over the liver area.

(3) There is often a small tender area in the right costovertebral angle which can be elicited by percussion.

(4) The spleen is often palpable and tender.

(5) Inferior, deep cervical lymph nodes are frequently enlarged, soft and tender.

#### Clinical Diagnosis

It is most important to suspect the diagnosis, and to establish it as soon as possible, in order that the proper treatment may be instituted. Not only will the resulting course of the disease be shorter and less severe, but also the danger of the development of chronic hepatitis is greatly minimized. The clinical picture early in this disease may simulate any other acute febrile illness or vague gastro-intestinal disturbance. The marked anorexia, lassitude, looseness of stools without severe diarrhea, and the presence of a leukopenia with 5 to 10 per cent immature atypical lymphocytes are very suggestive of hepatitis. The presence of liver tenderness,

often without enlargement, is a very valuable sign. The diagnosis is primarily based on the demonstration of a definite disturbance in liver function in the presence of persistent and characteristic symptoms and, usually, enlargement as well as tenderness of the liver. Aggravation of liver tenderness by jolting exertion is a typical sign.

#### Laboratory Diagnosis

##### 1. *Prodromal or Pre-Icteric Phase*

During the prodromal stage of infection, the following laboratory procedures should be employed: determination of serum and urine bilirubin, the cephalin flocculation or thymol turbidity tests, and measurement of urine urobilinogen.

(1) The most satisfactory method for measuring serum bilirubin is the modification devised by Ducci and Watson.<sup>6</sup> By this test one can separate the prompt *direct* from the *indirect* reacting types of pigment. Increase in the prompt direct fraction is one of the early signs of liver dysfunction and may occur in the presence of a normal amount of total serum bilirubin. It is almost always associated with bile in the urine early in the disease. If this method is not available the usual determination of an icterus index is recommended. The Harrison spot test is the most sensitive test for bilirubin in the urine and the most specific test. Many patients will show an increased amount of bilirubin and urobilinogen in the urine in the prodromal or pre-icteric stage of infectious hepatitis. These tests are of real value in making an early diagnosis.<sup>7</sup>

(2) The cephalin flocculation and thymol turbidity tests for liver dysfunction are usually positive in the pre-icteric and icteric stages of the disease.

(3) The test for urine urobilinogen is of diagnostic value during the prodromal, icteric and chronic stages of hepatitis. Urine urobilinogen is usually increased in the prodromal stage and may become normal or disappear as jaundice increases due to a decreased excretion of bile pigments by the liver. However, the reappearance of an abnormally large amount of urobilinogen in the urine is usually followed by the be-



ginning of the recovery phase of the disease and thus is a valuable test for prognosis.

(4) Some workers recommend the brom-sulfalein test of liver function in the diagnosis of acute hepatitis since it is one of the first tests to become positive.

(5) The determination of serum alkaline phosphatase and total serum protein with albumin-globulin ratio may be of distinct value in the prodromal stage of the infection. A rise in serum alkaline phosphatase usually indicates an obstructive factor, and these patients usually have considerable edema and cellular infiltration of the portal areas of the liver.

2. *Icteric Phase of the Disease.* During the icteric phase of the disease the choice of tests depends on whether or not they are being used for diagnostic or prognostic purposes. For diagnostic purposes, tests which are indicative of parenchymal liver disease are the cephalin flocculation and thymol turbidity tests, urine urobilinogen, galactose tolerance and prothrombin time. Determination of prothrombin time is of distinct prognostic value in patients who are severely ill. After jaundice disappears, the brom-sulfalein test may be of prognostic value.

It is realized that in many cases it will be difficult and impractical to perform a large number of liver function tests. However, it is important to remember that the simple procedure of testing the urine for bile, in the patient in whom one is suspicious of viral hepatitis, can be of great value in making an early diagnosis. We should bear in mind that the laboratory tests which are available merely indicate the presence and degree of liver dysfunction and are in no way specific for viral hepatitis.

#### Differential Diagnosis

Viral hepatitis is readily recognized in an epidemic. The sporadic cases are frequently difficult to diagnose. There are no specific tests for the diagnosis of viral hepatitis and it is also true that there are many other diseases, particularly infections of virus etiology, which are associated with certain amounts of liver damage. Fortunately there are only a few instances in which the liver injury is as severe or as persistent as in the case of viral hepatitis. The diagnosis

is often reached by a process of elimination. A history of contact with other cases of hepatitis, or of having received plasma, blood, or serum injections, would suggest the diagnosis.

Virus pneumonia, infectious mononucleosis, malaria and acute brucellosis are the most common acute infections which may be associated with a degree of liver injury which is comparable to that occurring in viral hepatitis. Although jaundice may develop in the course of some of these infections, they should not be difficult to diagnose.

Toxic hepatitis may be confused with the afebrile forms of viral hepatitis. A careful history, however, should reveal some facts regarding exposure to hepatotoxic substances such as alcohol, carbon tetrachloride, commercial solvents, arsenic, etc.

If jaundice is present the differential diagnosis must include extrahepatic biliary obstruction and hemolytic jaundice. Exploratory laparotomy should be avoided if acute viral hepatitis is a possibility, for surgery may cause further liver injury and frequently results in death.

One should be aware of so-called *cholelithiolitic* hepatitis. This is a less common, but more severe form of viral hepatitis, characterized by evidence of prolonged intrahepatic biliary obstruction with severe jaundice, frequent hepatosplenomegaly and high mortality. These cases present difficult diagnostic problems, since they may imitate extrahepatic biliary obstruction. It is suggested that these cases begin as a hepatocellular form of disease which has undergone partial repair at the time the cholangiolitic damage becomes apparent.

#### Prognosis

The mortality rate for both homologous serum hepatitis and infectious hepatitis has been low, averaging about 0.3 per cent. The virulence of infection and the general physical condition of the patient are obviously important factors in determining the outcome of the infection. The incidence of chronic liver disease or chronic hepatitis as a consequence of the acute infection is not known. It is probably much higher than is generally appre-

ciated. Acute hepatitis may pass gradually into a chronic hepatitis, appearing to do so in a larger per cent of cases than has generally been thought. Frequently, patients who are on minimal exercise and appear to have recovered from the acute infection experience a recrudescence of the entire symptomatology upon an increase of physical activity. The outstanding symptoms of chronic hepatitis are lassitude, fatigue, loss of weight, and mental depression. Other common symptoms of chronic infection, once it is well established, are anorexia, dyspepsia, flatulence, intestinal cramps, intermittent soft stools, and chronic headache. Abnormal physical findings in these cases are usually limited to tenderness and enlargement of the liver. Exacerbations may occur at varying intervals, or symptomatic recovery may take place. Intercurrent infections such as dysentery, malaria, pneumonia, etc., may cause exacerbations of chronic hepatitis. Excessive amounts of alcohol and over-exertion may also be precipitating factors. The importance of recognition of these cases of chronic hepatitis cannot be overemphasized. Untreated cases of acute viral hepatitis and chronic hepatitis may progress rapidly into acute yellow atrophy of the liver with fatal hepatic failure. There is strong evidence that viral hepatitis may occasionally lead to some type of cirrhosis of the liver, although the incidence of this sequela is probably rather low.

#### Treatment

The cardinal principles of treatment of viral hepatitis are rest, proper diet, and the avoidance of additional liver injury. The importance of early, reasonably strict, and sufficiently prolonged bed rest has been well established and is the most important aspect of treatment. It is generally suggested that there be a minimum of four weeks of bed rest in any case of viral hepatitis. Bathroom privileges are usually allowed except in severe cases. It is considered desirable to maintain bed rest for at least one week after the disappearance of jaundice, symptoms and liver tenderness. Liver function tests should be approaching normal before bed rest is dis-

continued. A very gradual resumption of activity with periods of rest each day should be observed in all cases after strict bed rest has been discontinued.

A highly nutritious diet should be given which contains large amounts of protein, carbohydrate, and vitamin B complex. As a routine, 200 grams of protein, preferably as meat, milk, and cheese and 250 grams of carbohydrate are recommended. The importance of fat in the diet of the patient with acute hepatitis is a subject of disagreement. Most authors agree that enough fat should be allowed to make the diet palatable. Parenteral protein therapy may be given in the early stages of the disease if vomiting is marked or in severe cases of hepatitis. Fluids should be used liberally. It is desirable to have the patient take 3,000 cc. of fluid daily, intravenously if necessary. Oxygen should be given to all severe cases of hepatitis. As yet there is no clear cut evidence that antibiotics are of definite value in the treatment of viral hepatitis. Recently some promising results have been obtained by the use of adrenal cortex extract in cases of chronic liver disease including chronic infectious hepatitis. Apparently adrenal cortex extract produces a rapid regeneration of liver cells.<sup>8</sup> Even mild liver trauma is to be avoided. For this reason hepatotoxic drugs, such as alcohol, sulfonamides, barbiturates and opiates should be avoided. Alcohol should be strictly avoided.

There are certain criteria which have been used before allowing an ambulatory status of patients who have had viral hepatitis. These are as follows:

- (1) All patients should have at least 4 weeks of bed rest. This bed rest should be prolonged if the case of hepatitis is severe, chronic and if the patient is over 40 years of age, and if there are any complications present.

- (2) There should be a disappearance of symptoms and a return to normal weight.

- (3) The liver should be of normal size or, if enlarged, should not be tender.

- (4) Normal serum bilirubin levels should be present for one week before allowing an ambulatory status.

- (5) It is desirable to have negative



cephalin flocculation and normal serum phosphatase values and also a bromsulfalein retention of under 10 per cent in one hour.

In stressing the importance of bed rest, it should be noted that a lack of bed rest may cause death. Cases of acute hepatitis without jaundice may develop jaundice when they have not been treated with bed rest. Insufficient bed rest may lead to an exacerbation with return of jaundice more prolonged than the initial attack. Insufficient bed rest also delays recovery and may result in chronic hepatitis.

### Prophylaxis

It is well to consider some of the important principles to be considered in the prevention of viral hepatitis. Proper sanitary measures and proper sterilization of needles and syringes are extremely important. There is no known method of active immunization against infectious hepatitis although passive immunization of individuals exposed to infectious hepatitis by intramuscular injection of gamma globulin can be expected to offer some protection. This is advisable in the presence of an epidemic. However, this protection may not be expected to last over 6 to 10 weeks. This temporary passive immunity by the use of gamma globulin has proved to be extremely effective in the presence of epidemics of this disease.<sup>9</sup> A more careful screening of blood or plasma donors should be done in an effort to protect possible recipients of pooled plasma. We know that healthy carriers of the viral hepatitis virus exist. There is no known method as yet of excluding donors or treating whole blood which is capable of completely eliminating this virus. In the hope of making plasma, at least, free of virus, irradiation with ultraviolet rays of all plasma has been employed. Almost all commercially available plasma is now irradiated. However, even irradiated plasma may not be free from the hepatitis virus since numerous cases of viral hepatitis have been reported in the literature during the past year which were probably transmitted by the use of irradiated plasma.

### Summary

Viral hepatitis is a very common disease. An early diagnosis can usually be made by

a careful history and physical examination. An adequate period of bed rest is imperative and most important in the proper treatment of this disease. Because of the imminent danger of another war, a careful study of this disease process by the medical profession cannot be overemphasized.

### Discussion

DR. ROBERT FINKS (Nashville), Mr. Chairman and Gentlemen. First, I would like to compliment Dr. Myhr on his excellent presentation of this interesting liver disease. I would like to emphasize some of the points he has brought out and to add a few others.

Infectious hepatitis, especially if improperly treated, may become a very serious disease with the patient remaining chronically ill for years and terminally ending in cirrhosis. The most characteristic feature of this type of cirrhosis is its progressive nature and lack of response to therapy. Fortunately in the vast majority of these patients this is not the ultimate outcome although it is a hazard the skillful clinician will try to avoid.

Kunkel and Labby of the Rockefeller Institute for Medical Research, along with many other investigators, have repeatedly shown that there are at least four dangers to be avoided during the course of infectious hepatitis.

These are: (1) the avoidance of strenuous physical activity during the attack; (2) prevention of, or prompt treatment of any secondary bacterial infection; (3) avoidance of alcohol or other hepatotoxic drugs; (4) the insistence of a high caloric, high protein dietary intake.

The age of the patient is also important as those over thirty years of age do not tolerate the disease as well as younger individuals.

During the last war it was my good fortune to see and study a very large number of these patients with infectious hepatitis. Dr. Richard Blumberg and I reported an analysis of two hundred and fifty-five of these cases in the *Archives of Internal Medicine* in August, 1945. In that study it was found that there was evidence of functional hepatic damage by various liver function tests long after the patient was no longer jaundiced. If these patients were allowed full activity too soon, a relapse with further jaundice frequently developed. Allowing the patient to get up too soon seems to me to be one of the greatest errors in the management of these patients.

Certainly a prolonged convalescence and conservative management of these patients is very important in the successful treatment of infectious hepatitis.

If one avoids these pitfalls the patient usually does well and does not become an hepatic invalid.

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# **Management of Cord and Placental Blood and Its Effect Upon the Newborn, McClausland, A. M., Holmes, Frances, and Schumann, W. R., West. J. Surg., 58:591, 1950.**

This presentation is the second part of a study done as an attempt to discover factors which might increase fetal salvage. A summary of the first part of this study follows.

A comparative study was made of erythrocyte counts and weights of the newborn at term. Three groups were used: cases in which the cord was clamped at once, those in which the cord was allowed to pulsate five minutes, and those in which the cord and placental blood was stripped into the baby. Standards and procedures were set up so that there would be a minimum of error.

Evidence was elicited showing that babies in the "pulsating" and the "stripped" groups received a significant amount of blood which was beneficial. The amount varied, but when the stripping method was used, the term baby received about 100 cc. of blood.

Babies receiving this blood had higher erythrocyte counts, higher hemoglobin values, higher initial weights, less weight loss, and less rapid loss of weight.

It is believed the additional blood supplied is of benefit especially to prematures and to those infants who show evidence of shock following long labors, difficult deliveries, abruptio placentae, placenta previa, or compression of the cord.

Five minutes, as a rule, is not long enough to wait for pulsation if the baby is to receive its quota of available blood.

Stripping of cord and placental blood into the infant is not a harmful procedure when done gently, and is particularly useful in cases in which the condition of the mother or child is such that it is inadvisable to wait for the uterus to force the blood physiologically into the child.

The additional blood does not cause icterus.

The pulsating of the umbilical cord plays only a minor role in the process by which the baby receives blood after the second stage of labor. The pressure

of the uterine contractions upon a blood-filled placenta, forcing blood through the umbilical vein into the child, plays the major role. Pitocin and/or ergot preparations would aid in this process.

*Technic of Stripping the Cord.* Supporting the cord with the left hand near the vulva, the thumb and index finger of the right hand grasp the cord at this level and slowly and gently strip the cord blood towards the baby. At about one inch from the umbilicus the cord is compressed by these fingers and held so as to prevent back flow until the umbilical vein has again become distended with blood from the placenta. Another stripping is then done and repeated until the umbilical vein no longer fills with blood. The average number of strippings in this series was eight. The average amount of blood per stripping was 10cc. The authors emphasize that stripping must be done slowly and gently. The question as to the amount of blood which should be given is hard to answer, for each individual case varies. However, on the average a baby should receive about 10 cc. per pound of body weight.

Classification of infants especially benefitted by the extra blood received from stripping:

1. All prematures.

2. Term babies or prematures with evidence of varying degrees of shock resulting from: (a) Prolonged labor. (b) Difficult delivery (forceps, breech, or version and extraction. (c) Cord compression. (d) Blood loss (placenta previa or abruptio placentae).

3. Miscellaneous: (a) Undernourished term infants (placental infarcts or prematurely senile placenta). (b) Twins—especially the weaker one. (c) Cesarean section. (The fact that a relatively high percentage of infants delivered by uncomplicated cesarean section have difficulty in establishing respiration might conceivably be due to the rapidity with which the cord is cut which in turn deprives the child of the volume of blood which it would have obtained with "normal" delivery.)

(Abstracted by Milton Smith Lewis, M.D., Nashville, Tennessee.)



*Summertime is poison-ivy time. A consideration of the effectiveness of poison-ivy extracts in the treatment of this dermatitis is thus to the point.*

## "CONDEMNING 'POISON-IVY' INJECTIONS"\*

ROBERT N. BUCHANAN, JR., M.D., Nashville, Tenn.

The purpose of this paper is to condemn the practice of giving "poison-ivy" injections, especially as a therapeutic measure in treating patients with contact dermatitis and to disapprove of their being employed in an effort at prophylaxis. Improved measures of preventing rhus dermatitis and more effective therapy are urgently desired, but injections of the various poison-ivy extracts fail to accomplish these objectives.

I see too many patients who, in my opinion, have been harmed by poison-ivy injections. There is no method by which one can estimate the number of patients who have been given poison-ivy injections. I do not use the injections, and the only patients I see who have been treated by injections are those who have not done well. They represent the failures, creating admittedly a somewhat warped viewpoint but nevertheless such an impressive group that a plea for the discontinuance of this practice is justified. These failures are due to:

- (1) The ineffectiveness of the remedy.
- (2) The untoward reactions which, at times, are caused by the injections.
- (3) Improper diagnoses in which the patients did not have rhus dermatitis but who nevertheless were treated by poison-ivy injections.

Many other contactants can cause a dermatitis venenata clinically indistinguishable from rhus dermatitis. Patients so affected are frequently given ivy injections.

It has been shown that the sensitizing principle in the various members of the rhus family (*Rhus radicans*, *Rhus quercifolia*, *Rhus microcarpa*, *Rhus rydbergii*, *Rhus diversiloba*; and *Rhus vernicifera*, etc.) is the same. The dermatitis provoking factor has been called toxicodendrol, lobinol, and

urushiol. Since the dermatitis producing principle is identical in poison ivy, poison oak, poison sumac, and the Japanese lacquer tree, the resulting dermatitis is indistinguishable. These plants occur abundantly throughout the United States and in other portions of the world. Undoubtedly rhus dermatitis is the most frequent of all plant sensitization. Perhaps about 60 per cent of the population is sensitive to poison ivy.

Dakin<sup>1</sup> in 1829 was probably the first medical authority to advocate the utilization of the folk remedy of chewing poison-ivy leaves to gain immunity and stated that physicians advised the forbidden fruit be eaten as a cure for the external disease. Other reports recommending decoctions of the leaves appeared sporadically. In 1916, Duncan<sup>2</sup> initiated renewed interest by exhorting the chewing of rhus leaves as both a therapeutic and prophylactic measure. This thought was advanced by Strickler,<sup>3</sup> who recommended the oral administration of the tincture of rhus leaves, and in 1919 Schamberg<sup>4</sup> proposed the hypodermic use of the tincture in both prophylaxis and therapy with main emphasis on prophylaxis. He also advocated the oral use of the tincture and admonished the necessity of establishing poison ivy as the cause of the dermatitis.

Strickler<sup>5</sup> in 1921 reported thirty cases of rhus dermatitis successfully treated by injections only (no local treatment). There were no failures. Symptoms were relieved usually within twenty-four hours after the first injection. Objective improvement was also noted. Usually two injections were adequate to produce a cure; none required more than four injections. He stated: "The almost magic rapidity with which the amelioration of the itching associated with the infection occurs, the rapid subsidence of the

\*Read before the Tennessee State Medical Association, Nashville, April 10-11, 1951.

lesions, the uniformity with which good results are obtained and the avoidance of uncomfortable moist applications recommended under the old method of treatment suggests that this method marks a distinct advance in the curability of dermatitis venenata due to *Rhus toxicodendron*." Bivings<sup>6</sup> based his observation at a summer camp on 105 boys and girls between 10 and 20 years old suffering rhus dermatitis treated by injections. All showed good results without untoward reactions and no recurrences during that summer. It is appropriate to point out that these reports were based on poorly controlled or uncontrolled observations. Blank and Coca<sup>7</sup> found that injections of an extract of poison ivy can establish a complete immunity to the usual direct contact with the plant in at least a considerable proportion of susceptible individuals, and Caulfield<sup>8</sup> reported that intramuscular injections of poison-ivy extract were beneficial in treatment. French and Halpin,<sup>9</sup> administering by needle a 5 per cent alcoholic extract of poison ivy, treated 2,544 military personnel with results 68 per cent of which were classified good and 18.4 per cent regarded as fair. Others have reported satisfactory results.

Molitch and Poliakoff,<sup>10</sup> giving the extract by injection, reported excellent prophylactic results in a series of controlled cases in which one group received the extract and one group did not. Poison-ivy dermatitis did not develop in the former group during the season, but it did in two-thirds of the latter group. These authors made another enthusiastic report nineteen months later.

In a carefully controlled study, Krause and Weidman<sup>11</sup> failed to confirm these observations both for prevention and for treatment. This piece of work warrants recounting in some detail. The test subjects were twenty medical students. The material used for testing was a standardized tincture of proven potency. Of the original twenty students selected, 8 were known to be susceptible and 12 were thought to be immune. However, when the initial patch tests were made, two of the twelve thought to be immune reacted, so the original group was composed of ten immune and ten sus-

ceptible individuals. Of the ten immune subjects, six reacted if the skin was scarified before the patch test was applied, leaving four who were absolutely immune. The susceptible subjects were then given the recommended immunizations, following which patch tests were reapplied revealing results which indicated that susceptibility had not been altered. They reported that: "Pruritus and transient occurred in the majority of those receiving preventive treatment. In two subjects, hemorrhoids were aggravated." The pain at the sites of intramuscular injections outweighs the danger of future attacks of ivy poisoning such as are only suppositions in the commoner walks of life—the preventive system of treatment of Strickler did not prevent. It is possible that the curative value of this system is likewise scant or nil and that the beneficial results which have been reported are dependent on and ascribable to the variable susceptibility of different individuals and the varying intensity of the irritant as applied at different times."

Bachman<sup>12</sup> concluded that poison-ivy injections were of no value in the prevention of rhus dermatitis. Simon and Lot-speich<sup>13</sup> performed patch tests on 8 sensitive individuals with three dilutions of poison-ivy extracts (1-100, 1-1000 and 1-10000). The subjects were then given a series of intramuscular injections of the specific extract and were subsequently retested with the afore-mentioned dilutions and concluded that skin sensitivity was not appreciably altered by the injections used in their experiments. Zisserman and Birch<sup>14</sup> studied 1,731 boys at a camp. Of these, 304 boys received prophylactic intramuscular injections of the specific excitant. The incidence of poison-ivy dermatitis in the treated group was 51.6 per cent while the incidence in the camp was only 33.6 per cent. They therefore concluded that the injections increased rather than decreased the clinical susceptibility to poison-ivy dermatitis. Greenberg and Mallozzi,<sup>15</sup> perplexed by the conflicting opinions and reports, applied a quantitative method to measure the changes in the level of cutaneous sensitivity and concluded that specific injections did not



succeed in producing a regular diminution of the skin sensitivity. A group of specifically treated subjects and a group treated with blank control injections were subjected to fairly massive natural exposures of *Rhus toxicodendron* during the six weeks following the injections. The natural exposure in both the treated and the control groups were on the whole approximately identical. Under the conditions of this experiment there was little difference in the incidence (or severity) of clinical ivy dermatitis in the two groups. Ivy dermatitis developed in 27 per cent of the specifically treated subjects and in 36 per cent of those who received control injections.

Dakin<sup>1</sup> in 1829 warned about an eruption, swelling, redness, and intolerable itching around the verge of the anus following the eating of poison-ivy leaves. Carson<sup>16</sup> was probably the first to report an unfavorable reaction following injections of the antigen. Spain and Cook<sup>17</sup> warned against reactions that occur when large doses are given. In 1929 Templeton<sup>18</sup> reported several cases showing reactions distinctly allergic in character. He divided the reactions into two groups: (1) The localized type in which the reaction occurred around the site of the injection of the extract of poison ivy. The reaction, consisting of either a group of small wheals or by coalescence of small wheals forming large plaques, appears 24 to 48 hours following the injections. (2) The generalized type which may begin as type 1 and spreads over the body, or it may suddenly appear over the body without having been preceded by a localized eruption. In either case the reaction consists of two distinct types of primary lesions, urticarial wheals and papulovesicles of dermatitis venenata. Goldman<sup>19</sup> states that: "In spite of the popularity of specific antigen for treatment relatively few carefully controlled studies of this form of therapy have been done. Moreover, this form of treatment has been shown to be dangerous during the actual course of a poison-ivy dermatitis." These patients are extremely uncomfortable; pruritus is severe. Patients with reactions like those reported by Templeton

have impressed me so much and constitute the basis of this plea.

The untoward reactions which I have observed following the intramuscular administration of poison-ivy preparations are generalized urticarial and erythema multiforme lesions, marked induration at the site of the injections, accentuation of the itching and worsening of the sites of original existing dermatitis.

Howell<sup>20</sup> studied forty patients with acute poison-ivy dermatitis. Twenty-three were given intramuscular injections of Lederle's poison-ivy extract during the course of their eruption. Seventeen patients were used as controls and were given from one to four injections of crude liver extract or proteolac intramuscularly or of strontium bromide intravenously. All patients were allowed to use the same local remedies. The patients who received the specific extract by injection were not able to sleep any better nor did they have fewer cycles of pruritus, less discomfort or any appreciable benefit from injections given before or during the height of the reaction. There was absolutely nothing that could be considered specific or strikingly beneficial from the use of poison-ivy extract. No differences in the rate of healing could be noted in the two series and the course was never aborted even when the injections were given within the first forty-eight hours after exposure to the plant. It is Howell's opinion that poison-ivy extract is contraindicated for the treatment of acute *rhus* dermatitis. It has often been observed to do harm.

Stevens<sup>21</sup> in a comprehensive survey covering the whole subject of poison-ivy injections concludes, "The treatment of the acute rash with ivy extracts should be discouraged, because many patients are made worse and there is no satisfactory evidence that any are helped."

Shelmire<sup>22</sup> administered to a group of twenty individuals sensitive to poison ivy a 1:25 or 1:10 dilution of poison-ivy leaf or root oleoresin in corn oil. Pretreatment and post-treatment quantitative patch tests demonstrated that varying degrees of reduction of cutaneous sensitivity followed ingestion of the specific oil. No reduction

of the level of sensitivity of the skin occurred in untreated controls.

### Summary

In spite of the popularity of injection treatment developed during a period in medicine when much thought and effort was being devoted to searching for specific serum for infectious diseases and other illnesses, information has been presented which indicates that injection of extracts in the treatment of poison-ivy dermatitis is ineffective. It often is harmful, producing a very uncomfortable untoward reaction. For prophylaxis oral desensitization may be more effective and is safer in that untoward reactions are milder. Therefore poison-ivy injections serve no useful purpose.

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### Discussion

DR. FRANK WITHERSPOON (Nashville): I feel that Dr. Buchanan has done an excellent job in reviewing the pros and cons of this important subject. I think, further, that he has reached some very valid conclusions in this regard. *There is no good reason* for giving injections of poison-ivy extract in the treatment of this disease. A day or two ago I asked five successive patients in my office if they had ever had poison-ivy injections or if any close member of their family had. Three of the five answered in the affirmative. All three of these seemed to feel rather strongly about this matter, as apparently there had been a severe exacerbation in each instance. Proponents of this form of therapy might say that "the disease was on the up-grade at the time of the injections and that the increased itching and spreading of the disease was the natural course of events." That may be true, but I have seen many patients with a generalized urticarial rash, or an acute widespread contact dermatitis, which apparently had been a rather mild eruption until poison-ivy extract was injected. I agree with Dr. Buchanan that its value in a prophylactic way is questionable also. I have seen no patients with this rash which could be traced directly to the injections, but I feel that their advantage is practically nil, in the face of controlled experimental evidence.

The first day of this meeting, I was talking to the representative of one of the leading pharmaceutical houses whose company manufactures a large amount of poison-ivy extract. He told me that his firm is not advertising or pushing this product now but is simply "filling orders." I think that we will all agree that when a drug manufacturer stops "pushing" and advertising a product



that he must have lost at least some degree of faith in that product. Most dermatologists feel that the best way to immunize against poison ivy is by the use of oral capsules, beginning this process in the early winter and planning to give the capsules daily over a course of six or eight months.

If this is done gradually, we have seen few cases of irritation except occasional pruritis ani. The

sensitivity of some of the highly susceptible individuals seems to be lessened by this desensitization process. Therefore if we are to do anything, let us attempt to actually desensitize orally rather than to "immunize" with "shots." Again I wish to congratulate Dr. Buchanan upon his excellent presentation and to concur wholeheartedly in his conclusions.

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**Iron Metabolism In Human Pregnancy As Studied With the Radioactive Isotope, Fe<sup>59</sup>, Hahn, P. F., Carothers, E. L., Darby, W. J., Martin, M., Shepard, C. W., Cannon, R. O., Beam, A. S., Densen, P. M., Peterson, J. C., and McClellan, G. S. *Am. J. Obst. & Gynec.*, 61:477, 1951.**

Iron tagged with the radioactive isotope Fe<sup>59</sup> was fed in single doses, ranging from 1.8 to 120 mg., to 466 women at various stages of pregnancy, and the uptake of iron determined. As the dosage was increased from 9 to 18 mg. and beyond, the percentage of the total dose of iron found in the maternal red cells decreased, while the amount of iron taken up increased from the lowest to the highest dose. As gestation progressed, the uptake of iron increased to the extent that at 30 weeks gestation and over, three or more times as much iron was absorbed as during the period before the fifteenth week of gestation. The therapeutic

implications of these findings are discussed. The inefficiency of absorption of large doses of iron for normal pregnant women is noted. The variation in uptake of the fetus with varying dosage does not appear to be greatly different from that of the mother. Relatively little variation in the amount of radioactive iron in the red cells of the infant at birth was observed for iron administered at different periods of gestation. The red blood cell mass of the newborn infant contained on the average about 10% as much of the administered iron as that of the mother. The ratio of fetal to maternal radioactive iron per milliliter of red blood cells was not greatly different from one. The relation between parity and iron uptake is discussed.

(Abstracted by Hamilton V. Gayden, M.D., Nashville, Tennessee.)

*The symptomatology of the female climacteric touches all fields of medicine but is in the main the problem for the family physician. His approach to the psychologic problem is as important, if not more so, than the use of hormones. The clinical picture and problem of the male climacteric is still too infrequently recognized for what it is.*

## ENDOCRINE TREATMENT OF THE CLIMACTERIC\*

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The termination of cyclic bleeding and the cessation of reproductive function objectively marks the beginning of the transitional phase in the woman's life and becomes a part of a highly complex phenomenon termed the climacteric.

This epoch, on the average, occurs between the ages of 45 and 48 but may take place prematurely as the result of surgical castration, irradiation, disease or other cause. Whether natural or artificial, the menopause presents a symptom-complex associated with declining ovarian function and implies a relative estrogen deficiency. Evidence seems to indicate that a parallelism may occur in the male at about the age of 50 or later, and may well be the result of diminishing testicular activity. While treatment of the menopause occupies a predominant part of the literature on the subject, we wish to emphasize the importance of the recognition of the male equivalent. The multiplicity of complaints, absence of demonstrable pathology, and the unpredictable response to treatment of this group often bewilders the physician and leads to irrational and unsound therapy. Since these patients are so frequently encountered, an intelligent approach to the problem of their management should warrant our serious consideration.

The symptomatology of the climacteric in females may be divided into sexual and non-sexual manifestations. Of the sexual disturbances, the cessation of menstruation is the most familiar. The manner in which the flow ceases is variable. The interval

may become longer and the flow more scanty, or again, the reverse of this may be the case. Less often do previously regular periods cease abruptly and remain absent thereafter. Ovulation, in turn, is either diminished gradually or, less commonly, it is abruptly suppressed. On occasion we find what seemingly is a spurt of ovarian activity before failure when women conceive for the first time just prior to the menopause.

Structural changes of the internal and external genitalia are heralded by fibrosis of the ovary and the resultant atrophies of the endometrium and vagina. Varying degrees of hirsutism are noted, together with an alteration of feminine fat distribution. The characteristic feminine body contour is replaced by the more masculine or neuter type. Changes in metabolism may result in fatty stools, obesity and diabetes mellitus. Flatulence, alternating constipation and diarrhea, with or without abdominal distress, adds to the confusing picture, and commonly leads to errors of diagnosis.

The etiology of these variable symptoms remains obscure despite the advances made in endocrinology. Conflicting observations as to the role of the ovary, excess or deficiency of estrogen resolve in the assumption that at least there is an imbalance of estrogens. The role of the pituitary, whether one of primary or secondary alteration, remains in doubt. Digestive disturbances, changes in metabolism and neuro-circulatory phenomena have led us to implicate the pancreas, thyroid and adrenals. All in all, we may conclude that the climacteric is the expression of a general disturbance of function of the endocrine sys-

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tem which may or may not be precipitated by failure of the ovary or the testicle.

The non-sexual manifestations usually appear with, or soon after, the cessation of menstruation—but not infrequently they may precede or follow it by several months or years. The most characteristic, persistent and often the most distressing of climacteric disturbances is the hot flush. During an attack the patient experiences a sudden wave of heat to the head and neck, and the face becomes intensely flushed. This is soon followed by sweating, rather marked pallor, and most usually followed by weakness. These attacks may occur only at infrequent intervals in mild cases, but in the severe cases may recur at short intervals throughout the day and night. Cardiac arrhythmias and palpitation are common. The blood pressure in this group shows distinct variability and instability. Anxiety states, irritability, nervous fatigue and depression are typical expressions of this critical period. A correct appraisal of these multiple manifestations tax the ingenuity and diagnostic ability of the conscientious physician. So often do these symptoms mimic organic disorders and psychopathic states that at times it requires unusual skill to differentiate between the two. I am quite certain that I have subjected many patients to costly laboratory and diagnostic procedures in order to arrive at a proper conclusion. This, then, brings out an economic problem in the management of these cases. However, the burden of proof for the correct diagnosis, and the ability to exclude all organic disease, rests with the physician before the more or less benign diagnosis of climacteric syndrome can be made. It is our practice to assume that all patients who present themselves for treatment have organic disease, irrespective of how strongly we may suspect a functional disorder or the climacteric. Failure to assume this attitude may result in tragic error. A complete history and physical examination with the routine and indicated laboratory procedures must be done for any correct evaluation. It cannot be too strongly emphasized that carcinoma of the colon may be responsible for the flatulence and

abdominal discomfort in the 51-year-old woman receiving estrogens for her vague complaints.

In the management of the climacteric, we should not allow ourselves to be misled in the false premise that estrogen is the specific for the disorder and there rest our case, for again we may err by failure to elicit the history of an unfaithful husband or an alcoholic daughter as being the cause of this patient's anxiety or depressed state. It is our practice to reserve estrogens for those cases that are refractory to other methods of control and only in those where clinical observation indicates that a deficiency exists. In patients experiencing irregular bleeding, it is certainly questionable whether they should receive it at all, irrespective of the indication. This precept is especially noteworthy in view of the high incidence of abnormal endometrial patterns reported by Gusberg<sup>1</sup> in his studies of prolonged stimulation by exogenous and endogenous estrogens.

There is another group of patients which must be mentioned. Those in, or approaching the menopause with irregular uterine bleeding, with or without small myomata, in whom benign hyperplasia of the endometrium has been proved and where operation or radiation is contraindicated or refused. In this group it has been our practice to use small doses of phenobarbital, or other mild sedatives for the treatment of menopausal symptoms until more is known of the effect of estrogens in stimulating changes in the character of supposedly benign hyperplasia.

In my limited experience, I have seen on two occasions postmenopausal hyperplasia in patients receiving prolonged estrogen therapy that was sufficiently atypical to justify hysterectomy. Granted that evidence for estrogenic substances being carcinogenic in humans is meager, I feel that the burden of proof for those who ignore the possibility must necessarily rest with them.

According to Montgomery<sup>2</sup> the aim of estrogen therapy is palliation of the most distressing symptoms, particularly the vasomotor disturbances. It should not be our pur-

pose to attempt to overcome a deficiency completely, temporarily, or indefinitely, but rather to provide a more gradual withdrawal that will enable the body to adjust itself more slowly. In the administration of estrogen, it is best to prescribe it for two or three week intervals only, stopping for one week, and repeating the cycle with a reduced dosage. Cycles should not be continued for more than two or three months, and under no circumstances should administration be continued indefinitely. The oral route is to be preferred, and intramuscular injection limited to those requiring large doses. Vaginal suppositories have been proven helpful in senile vaginitis.

Although it is impossible to standardize the amounts necessary for the control of symptoms, we have successfully used the natural conjugated estrogens in doses up to 1.25 mg. and diethylstilbestrol in amounts not exceeding 0.5 mg. per day, without side reactions or withdrawal bleeding. Synthetic products are relatively more potent and must be more individually standardized. In my experience they also exhibit a greater tendency to produce withdrawal bleeding and troublesome side reactions. Needless to say, all cases of uterine bleeding after an established amenorrhea of 6 months or longer should have a diagnostic curettage to eliminate the possibility of malignancy, even though we suspect our medication as the causative agent.

The use of androgens is discussed by Greenhill,<sup>3</sup> who advocates their use to control the distressing symptoms of the menopause in women who had had a breast or other organ removed because of cancer, who have had pelvic endometriosis, or who bleed when they take estrogens. He advocates 10-20 mg. of methyltestosterone daily. My experience with androgens indicates them to be well tolerated, safe in the dosage prescribed, and of value in relieving symptoms. The total dosage per month should not exceed 300 mg. in order to prevent any masculinizing effect. Testosterone in like amounts has proven effective in the treatment of the climacteric in men, and its disagreeable side effects may there be ignored.

Thyroid is indicated in patients exhibiting clinical hypothyroidism, but as a means

of combating the vasomotor disturbances, fatigue syndrome or psychogenic states, it has proven to be of little or no value.

The effectiveness of vitamin E for the control of symptoms has been reported by Finkler<sup>4</sup> with encouraging results. Approximately half of these in her series received 30 mg. per day and were relieved of their vasomotor disturbances and experienced an added sense of well-being. While I have not been able to achieve such results with this vitamin, I have found it to be effective in a number of patients, and urge that it be tried in those cases where estrogens are contraindicated.

Israel<sup>5</sup> has pointed out that one of the essential features of the menopause is anxiety arising from emphasis on biologic inutilty, on a contracting social circle because of the aging or death of friends, and finally, in many instances on the decreased economic security of increasing age. It is in this group that the physician lends his greatest usefulness in guiding the patient in an intelligent self-analysis of her situation, and assuming the role of father confessor to allay her many fears and frustrations.

The amphetamines have proved extremely useful in controlling these particularly distressing symptoms, but the time-honored barbiturate and bromide continues to be our standard medication.

The successful treatment of the climacteric includes, then, an intelligent interpretation and explanation of the patient's problem, plus judicious use of anti-depressive and sedative drugs to meet the individual requirement. The hormones should certainly be a part of our armamentarium, but I have been singularly unimpressed in the results obtained with estrogen administration in a large majority of patients. To paraphrase Novak, the management of this troublesome condition fairly well reveals the competence, common sense, and conscientiousness of the physician.

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### Discussion

H. K. TURLEY, M.D. (Memphis): A discussion of the climacteric would not be complete without some attention to the male counterpart of the so-called "menopause." More men pass through this particular period than we appreciate clinically, because their symptoms are not as distressing as those of the female. Perhaps this is due to the lack of publicity concerning the male climacteric and also the fact that the men themselves are not well acquainted with the symptoms which they are supposed to have. The physiological basis for the symptoms in the male climacteric is a gonadal hormone deficiency. This deficiency state usually occurs in the fifth and sixth decades of masculine life with an average duration of three to six months. We must stress that the age of occurrence and duration of symptoms are extremely variable.

Since the climacteric is the result of a neuro-endocrine imbalance, it is necessarily functional. The symptoms may be classified as nervous, circulatory and general as found in the female climacteric.

The most common nervous symptoms are: subjective nervousness, irritability, excitability, depression, crying, decreased memory and concentration, loss of interest and self-confidence and a feeling of futility.

The more common circulatory symptoms are: hot flushes, chilly sensations, sweating, vertigo, numbness, tingling, tachycardia, palpitation and dyspnea.

The general symptoms include fatigability, lassitude, a decrease or loss of libido and potency.

In some cases it may be desirable to differentiate the male climacteric from psychogenic impotence or anxiety tension states. This may be accomplished by finding: 1) alterations in the appearance of Leydig cells as revealed by studying testicular biopsy, 2) a marked elevation of urinary gonadotropins and 3) a positive response to a therapeutic testosterone test.

Testosterone propionate, 25 mg. three times a week intramuscularly has relieved symptoms and produced a sense of well-being, which is the primary objective of this treatment. This medication should be administered for two to three months for the purpose of stabilization even though the symptoms may be relieved within a few weeks. Testosterone may also be given orally or by implantation. The effective oral dosage is three to eight times greater than the intramuscular.

Testosterone should not be given to stimulate potency. While it occurs in some patients, this result cannot be promised, and it is perhaps better for older men if this phase of the reaction does not result.

In considering the male climacteric, hormone therapy may be safely and successfully used for the treatment of these symptoms. However, we must stress the importance of ruling out organic disease before the more or less benign diagnosis of the climacteric syndrome can be made. (Bibliographic references on this subject: *J. A. M. A.*, 127:705, 1945; *Kentucky M. J.*, 45:207, 1947; *Psychiatric Quart.*, 21:410, 1947.)

*Much of preventive medicine at the present time must be directed toward the diagnosis of early carcinoma or its forerunner. The nodular goiter thus falls into such a consideration.*

## THE ADENOMATOUS OR NODULAR GOITER\*

G. TURNER HOWARD, JR., M.D., Knoxville, Tennessee

It is difficult to explain the apathy of the medical profession in general toward nodular goiter in view of the well-known facts about this type of lesion. This is particularly true of the nontoxic adenoma. Buckwalter and associates have reviewed the policies of many institutions in regard to their treatment of the nontoxic adenomas. A surprising number advocated expectant treatment.<sup>1</sup> However, the majority did recommend surgery in all cases of nodular goiter. Hinton and Lord<sup>2</sup> have compared the attitudes toward a lump in the breast and a lump or nodule in the thyroid. Although they are comparable in their malignant potentialities, no one would question the advisability of excision or biopsy of a breast tumor whereas some still "wait and see what happens" to the thyroid tumor. While waiting, many that are not carcinomatous become malignant, because it has been shown that the thyroid is one place where benign tumors are definitely precancerous.

### Incidence of Carcinoma in Nodular Goiters

Strange as it may seem, carcinoma is found more often in the goiters with single nodules than in those with multiple nodules, and less in the toxic adenomas than the nontoxic adenomas. Cole et al. found carcinoma in 24% of solitary nontoxic adenomas. Eleven per cent of the multinodular nontoxic goiters were malignant while only 1% of the toxic nodular goiters turned out to be carcinomatous.<sup>3</sup> In his series of 192 cases of nodular nontoxic goiters the total incidence of carcinoma was 17.1 per cent. Cope et al. reported malignancy in 10 per cent of all nodular goiters and 19 per cent in those that had a single nodule.<sup>5</sup> Soley, Lindsay and Dailey reported 16 per cent malignancy in their series of 96 patients

with solitary nodules in the thyroid.<sup>6</sup> The average duration of the mass in patients with solitary carcinoma was 7.1 years according to Cole et al.<sup>4</sup> This would indicate that the lesions started as benign and sometime in the interval became malignant. The size of the adenoma seems to be of no significance. Lahey has found carcinoma in a discreet adenoma the size of tip of the little finger. Age has little to do with the incidence of carcinoma in nodular goiter. Lahey reports a boy of 9 who died of carcinoma of the thyroid, and carcinoma in other children 12, 13 and 14 years of age.<sup>7</sup> Therefore, any palpable mass in the thyroid gland of a child should be suspected of possessing malignant qualities regardless of how innocent the mass might appear. Pemberton and Black reported a series of 53 children operated upon at the Mayo Clinic for nodular goiter. Of this group 34 per cent were malignant, which is a considerably higher incidence than that reported for adults.<sup>8</sup>

Tumors arising in lateral aberrant thyroid tissue may be confused with nodular goiters. These may be of lateral, median, or ectopic origin. For every 500 goiters there is one case of lateral aberrant thyroid. Pathological examination of these tumors show cystadenoma with little differentiation into adult thyroid tissue. They are all considered either potentially or definitely malignant and should be treated by radical neck dissection and hemithyroidectomy followed by postoperative radiation.<sup>9</sup>

### Symptoms and Diagnosis

If the patient has nervousness, palpitation, loss of weight, increased appetite, an elevated metabolic rate, decreased blood cholesterol, etc., a diagnosis of toxic nodular goiter may be made. Many authorities have pointed out that the basal metabolic rate in itself is not a criterion of the toxicity

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of a goiter.<sup>1</sup> Hertzler has stressed this point, and cited his experience with patients on whom follow-up had been carried out for long periods of time, and who eventually developed what he called "goiter heart," even though the basal metabolic rate was never elevated. These patients were greatly improved following thyroidectomy.<sup>10</sup>

When an adenoma of endocrine gland tissue exists, the tumor in many instances actually functions as secretory tissue. In adenomata of the islets of Langerhans we see hypoglycemia, and in the parathyroid adenomata one notices hypercalcemia. In the thyroid there has been some question whether ordinary adenomas cause symptoms or whether they may exist without producing any manifestations of functional activity.<sup>11</sup> The question has been raised whether the nodular or paranodular goitrous tissue is responsible for the hyperthyroidism in the patient with the toxic nodular goiter. Some have questioned whether the nodules of a nodular goiter are even capable of functioning, because large amounts of adenomatous tissue may be removed in the nontoxic goiter without producing appreciable change in the clinical thyroid function. Puppel, LeBlond, and Curtis<sup>11</sup> studied the behavior of nontoxic adenomas by the ingestion of radioactive iodine and found that all nodules showed a decreased function when compared to the function of the corresponding paranodular thyroid tissue. They further found that the paranodular thyroid tissue of a patient with toxic nodular goiter acted biochemically to a greater extent like the diffuse hyperplastic tissue of exophthalmic goiter.

On the other hand, Cope, Rawson and McArthur found that the adenoma in a case of hyperthyroidism showed an avidity for iodine comparable to that found in untreated hyperplastic goiter with hyperthyroidism, while the uninvolved, grossly atrophic tissue failed to take up any measurable quantity of radioactive iodine.<sup>12</sup>

Even if the nontoxic adenoma does not exhibit as much function as normal gland tissue, there is evidence of some function which is not normal. Other authors conclude that nodular goiters associated with

basal metabolic rates in normal and subnormal ranges can, and do often cause systemic symptoms. In most cases these symptoms disappear after removal of the goiter. Such symptoms as nervousness, easy fatigue, palpitation, shortness of breath, and vague gastrointestinal symptoms may be found in the so-called nontoxic goiters and are relieved in a large percentage of cases by thyroidectomy.<sup>1</sup>

Besides the symptoms of disordered function of the thyroid, nodular goiters produce other symptoms such as a sense of pressure in the neck, or actual choking. Sometimes there may be hoarseness due to pressure on the recurrent laryngeal nerve. Cough and pain are sometimes reported. The intrathoracic or substernal adenomas may cause dysphagia as well as deviation of the larynx which is often associated with a raspy cough. There may develop dilatation of the superficial thoracic veins over the chest, and engorgement of the neck veins which sometimes causes edema of the face. Barium by mouth observed with the X-ray is of great help in the diagnosis of these tumors.<sup>13</sup>

#### Treatment

Operation is the only rational treatment for nodular goiter whether it is toxic or nontoxic, not only because of the high incidence of malignancy in such tumors, but also because of other distressing symptoms due to pressure or disordered thyroid function. The general technic of thyroidectomy has been described elsewhere.<sup>14</sup> We are in agreement with Puppel, LeBlond and Curtis<sup>11</sup> that a bilateral subtotal thyroidectomy should be done on the usual case of toxic nodular goiter because in many of these the paranodular thyroid tissue is very hyperplastic. Simple enucleation of the nontoxic adenoma with perhaps a small margin of normal thyroid tissue has been found to be adequate for these cases. However, a careful search of both lobes must be made for smaller, less obvious tumors, which must be removed. If there is invasion through the capsule indicating malignancy, a total hemithyroidectomy and block dissection of that side of the neck must be done which, if carcinoma is proven, is followed by X-ray therapy. Frozen section has proven to be

misleading in some author's hands<sup>8</sup> but has been helpful on occasion for us.

The substernal or intrathoracic adenomas are best approached by the technic advocated by Lahey<sup>13</sup> in which anesthesia is given through a semiflexible intratracheal tube and the inside of the tumor is broken up and suctioned out, followed by delivery of the capsule. We prefer gelfoam wet with thrombin for the cavity in the chest instead of gauze.

Lange and MacLean<sup>8</sup> state that patients with clinically palpable nodular goiters should be given thiouracil and similar compounds only as a preoperative measure. This is advised because, not only is there a high incidence of malignancy in such goiters, but also the question has been raised that such drugs may in themselves be carcinogens, or may enhance cancer susceptibility. Thiouracil and propylthiouracil are potent thyroid depressing agents which block the acinar cells of the thyroid, preventing the formation of thyroxine and indirectly liberating excess thyrotropic hormone from the anterior pituitary, causing marked thyroid hyperplasia. When its action is fully established, there occurs a basophilia in the anterior pituitary similar to that which follows thyroidectomy.<sup>17</sup> Of the so-called antithyroid drugs propylthiouracil has the lowest incidence of complications and side effects, but it still should be used with discretion. Thiobarbital is the most toxic and should not be used.<sup>20</sup> Some advocate intravenous sodium iodide for the severe cases of thyrotoxicosis.<sup>15</sup> Since there is no doubt that the antithyroid drugs have reduced the mortality in the severe cases of the hyperthyroidism because of the fact the patients can be gotten into much better preoperative condition, we have used propylthiouracil in all cases where the basal metabolic rate is +40 or above. Lugol's solution is started at the same time as the propylthiouracil but no propylthiouracil is given one week before operation as advocated by Lahey.<sup>16-20</sup> This has helped to avoid the vascular, friable gland at operation, and also tends to avoid any agranulocytosis that might develop during the postoperative period. Lugol's solution alone is

used for the milder cases of toxic nodular goiter. Sedation and other preoperative measures are the same as for primary hyperthyroidism.<sup>11</sup> Our patients are given Lugol's solution for three days postoperatively. The nontoxic cases are discharged from the hospital in 4 to 5 days, and the toxic cases discharged in 6 to 7 days.

### Summary

1. Malignancy is found in as high as 24 per cent of solitary nontoxic adenomas of the thyroid gland, and in 11 per cent of multinodular nontoxic goiters. Toxic nodular goiters show a much lower incidence of malignancy.

2. The incidence of malignancy in the nodular goiters of children is even higher, being reported as 34 per cent.

3. Even the so-called nontoxic adenomas produce symptoms due to disordered function or toxicity not detected by an increase in the basal metabolic rate.

4. Propylthiouracil is the choice of antithyroid drugs used in the preoperative preparation of the toxic adenomas when the basal metabolic rate is +40 or above. Lugol's solution is given with it from the first and the antithyroid drug is discontinued one week before surgery. Since this drug has potential dangers, it should be used only as preoperative preparation and should be used with discretion in adenomatous goiters.

5. The only rational treatment for both toxic and nontoxic nodular goiters is surgical excision.

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## Discussion

DR. R. R. BRAUND, Memphis, Tenn.: Doctor Howard has stressed the need for removal of all adenomas of the thyroid gland. During the past five years we have operated upon 57 patients with adenomas of the thyroid. In 19 instances cancer was found. The fact that cancer was suspected in several instances and patients were referred who otherwise might have been treated locally accounts for this high incidence.

Of special interest was a group of seven patients whose presenting symptom was a lump in the neck outside the thyroid gland. Five of these patients had been observed by their physician for periods ranging from eighteen months to four years. In none of the seven could the primary tumor in the thyroid gland be palpated until the "strap" muscles were divided. Three of the patients were children, 8, 12, and 17 years of age.

In our experience we have never seen a patient with the so-called aberrant thyroid cancer. Cancer occurring in the sides of the neck is metastatic cancer in lymph nodes. A thorough search of the thyroid gland will reveal the primary tumor. The removal of solitary nodes is a good diagnostic procedure but is inadequate for curative therapy. A total thyroidectomy combined with a radical neck dissection is the procedure of choice. If node involvement is bilateral, and it often is, a bilateral neck dissection must be performed.

It must be borne in mind that the origin of the thyroid gland is at the level of the base of the tongue and in its descent in the neck of the embryo, remnants may be left along the pathway. Cancer of the lingual thyroid is not uncommon. I have seen it in a child of 6 and in a patient of 88 years. It must be considered in the differential diagnosis of tumors at the base of the tongue.

Doctor Howard has presented an excellent paper showing us the importance of early removal of tumors of the thyroid gland. Only by histological study can the benign or malignant character of the early tumor be determined.

## VANDERBILT UNIVERSITY SCHOOL OF MEDICINE, MEDICAL STAFF CONFERENCE\*

DR. CLIFFORD TILLMAN: The subject for staff rounds this morning is hyperparathyroidism. We have an excellent case for discussion and in order to appreciate the patient's situation to the fullest advantage, we have decided that it would be best to start off with a discussion of parathyroid function insofar as certain facts are concerned. We will ask Dr. Ann Minot to present this information so that we may keep these in mind as the patient is presented.

DR. ANN MINOT: In the normal individual the normally functioning parathyroid glands maintain as you know calcium and inorganic phosphorus in the blood at concentrations which represent a nearly saturated solution. Hence, insofar as these ions are concerned, we are dealing with a solubility constant. It is rather hard when everything is going well to see just what the parathyroids contribute to this picture. Yet, however, if we introduce an excess of parathyroid influence we know that after a certain lag period we will find a situation where the calcium level in the blood is elevated. We speak of the parathyroid glands as regulating the calcium level in the blood which of course they do, but according to what we now know, due to the work of Allbright and many others this influence is an indirect one. The course of events by which the parathyroid hormone brings about an elevation of calcium in the blood consists of four steps which take place always in the same chronological order. The first effect, from the administration of excess parathyroid hormone, is to increase the excretion of phosphorus in the urine. In some way, not completely known, either the phosphorus becomes more readily cleared by the kidney or perhaps its reabsorption may be decreased—or both these factors may cooperate to increase the rate of excretion.

Coincident with the increase in urine phosphorus we see a reduction in the serum inorganic phosphate which, in terms of the

solubility constant we just mentioned, now makes it possible for more calcium to stay in solution in the serum. So practically simultaneously the second and third steps take place, namely a reduction of serum phosphorus and an elevation of serum calcium. And of course as the higher level of serum calcium is maintained in the blood, as one might expect one sees as the fourth event an increased excretion of calcium in the urine. We are not interested in parathyroid deficit today so I won't go into that in detail but should you remove the parathyroid glands from an animal you would find these same four events taking place in the same chronological order, but of course with the changes in the opposite direction, decrease in urinary phosphorus and increase in serum phosphorus, decrease in serum calcium and so on. Thus the effect of the parathyroids on the level of serum calcium is apparently secondary to the more immediate influence of these glands on the urinary excretion of phosphate.

Returning now to hyperparathyroidism, I don't want to go into the clinical picture except to point out two things. With this condition established on a chronic basis there is a constant increase in the urinary excretion of both phosphorus and calcium. That has to be at the expense of something and usually it is at the expense of calcium and phosphorus from the bones, which means a long time drain on the calcium and phosphorus stores of the skeleton. It is possible, and it sometimes happens that this increased loss can be met or is met by a high food intake of these constituents, in which case the bones may not suffer as much depletion as they otherwise would but, however the loss is met, we have in the chronic condition a situation which is full of danger to the patient. We have going through the kidney a solution—that is, the secreted urine represents a solution—which contains unusually large amounts of both calcium and phosphorus. Calcium phosphate is a rather insoluble salt which readily tends to be precipitated out of solution, this leading to the very frequent clinical complication of the formation of renal stones composed of calcium phosphate, or to even more serious general calcification of the kidney itself with

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subsequent impairment in renal function.

**DR. TILLMAN:** With this review in mind we may turn to the case presentation.

**DR. L. EMIL:** The patient is a 45-year-old white female who was admitted to Vanderbilt University Hospital on February 2. She is a switchboard operator.

Her admission was because of a fall with injury to her right hip 3 days previously. She was taken to another hospital where X-rays demonstrated a fracture of the right hip. She had been placed in a Thomas splint and subsequently transferred to this hospital for treatment.

Her past history is of considerable interest. She has had bilateral cataracts since birth and had an operation on her left eye because of this, with some improvement. However, a year ago she had a hemorrhage in the left eye, and her vision has been grossly impaired since that time. Approximately 3 years ago she noted the onset of weight loss, fatigability, weakness and a chronic sensation of tiredness. Her weight has dropped from approximately 120 to 87 pounds.

Two years ago she began to have a fairly severe backache. This was accompanied by pain in the hips and in the thighs. There was also considerable pain in the proximal interphalangeal joints. This pain has been so severe that even walking has been agonizing at times and she has been unable to assume a squatting position during the past 2 years.

For the past year and a half she has had shortness of breath. She has had ankle edema which first appeared in the afternoon after she had been sitting with her feet in a dependent position. However, she has noted for some time now that her ankles have been swollen in the mornings on arising. Slight facial and periorbital edema has been observed occasionally. A year ago she had a fairly prolonged episode of nausea and vomiting. At this time a gastro-intestinal X-ray study was reported to be negative. She was found to have gastric anacidity at that time and was apparently successfully treated by hydrochloric acid. For approximately 9 months she has had polyuria, polydipsia and polyphagia. She has had nocturia at least 3 times nightly. At times she has taken a milk bottle filled with water to her bedside and consumed its contents during the night.

Two weeks before admission she had a bizarre injury in the course of her routine activity. While lifting the arm from her body and reaching for an object she had a pain in the left costal margin area. This was followed by soreness which persisted for about 2 weeks, and was accompanied by a small lump at the site.

Her menses are somewhat irregular occurring about every 2 to 3 weeks.

In her twenties she was considered to have had an episode of rheumatic fever. Seven years ago a lesion was removed from her right breast, and 2 years ago she noted the recurrence of this lesion which has remained since that time.

On physical examination it was found that her

B. P. was 130/84, P. 100, T. 98° and R. 20. Her hair was found to be quite dry; the axillary and pubic hair was fairly sparse. She had bilateral cataracts and was able to read only large letters and to perceive color. She had an acorn-sized nodule in the outer upper quadrant of the right breast and a pecan-sized mass over the 10th rib in the left axilla. There were ridges in the nail beds and very shallow transverse depressions. A decubitus ulcer was present on the right buttock. Her chest, heart and abdomen were essentially negative. When she was admitted she held her right leg in 90 degrees of external rotation.

**Laboratory Findings.** On admission her Hgb. was 12 Gm., the white count 7400 with a normal differential picture. Her other laboratory studies are on the board. The most interesting ones are the following. Upon admission it was found that her calcium was elevated ranging between 15 to 15.5 mg.%; the phosphorus was found to be between 3 to 3.7 mg.%, the alkaline phosphatase was found to be somewhat elevated. NPN varied from 58 to 70 mg.%, fasting blood sugar was 96 mg.% and the chlorides ranged from 86 to 91 mEq. The Fishberg test demonstrated the maximum ability of renal concentration to be 1.007 to 1.006. On a PSP test 5% of the dye was put out in 15 min. and a total of 35% of the dye was excreted in 2 hours.

**Clinical Course.** An X-ray film taken of the femur upon admission showed a fracture. It was fixed internally by means of a Smith-Peterson nail and she has been given the conventional care for the fracture. She has been placed on a low calcium diet and her course has been essentially non-eventful except for the presence of fairly severe vomiting which has continued since admission. (See Fig. 1.)

**DR. TILLMAN:** Since this is a private patient of Dr. Allen Kennedy we will ask him to comment on the clinical course.

**DR. ALLEN KENNEDY:** There are several items in her clinical course which I have jotted down and which might be of some interest since they did not appear in the presentation as given.

When I first saw her a year and a half ago her urinary concentration test was 1.006; the PSP test showed 40% excretion the first hour and 20% in the second. Her metabolic rate was normal. At intervals during this period as I have seen her I thought she had nephritis. The maximum urinary concentration has never been higher than 1.009 varying between 1.009 and 1.006. The PSP excretion has fallen from 60% a year and a half ago to about 35% about 3 months ago. She has been anemic most of this time. A series of gastrointestinal symptoms have appeared in

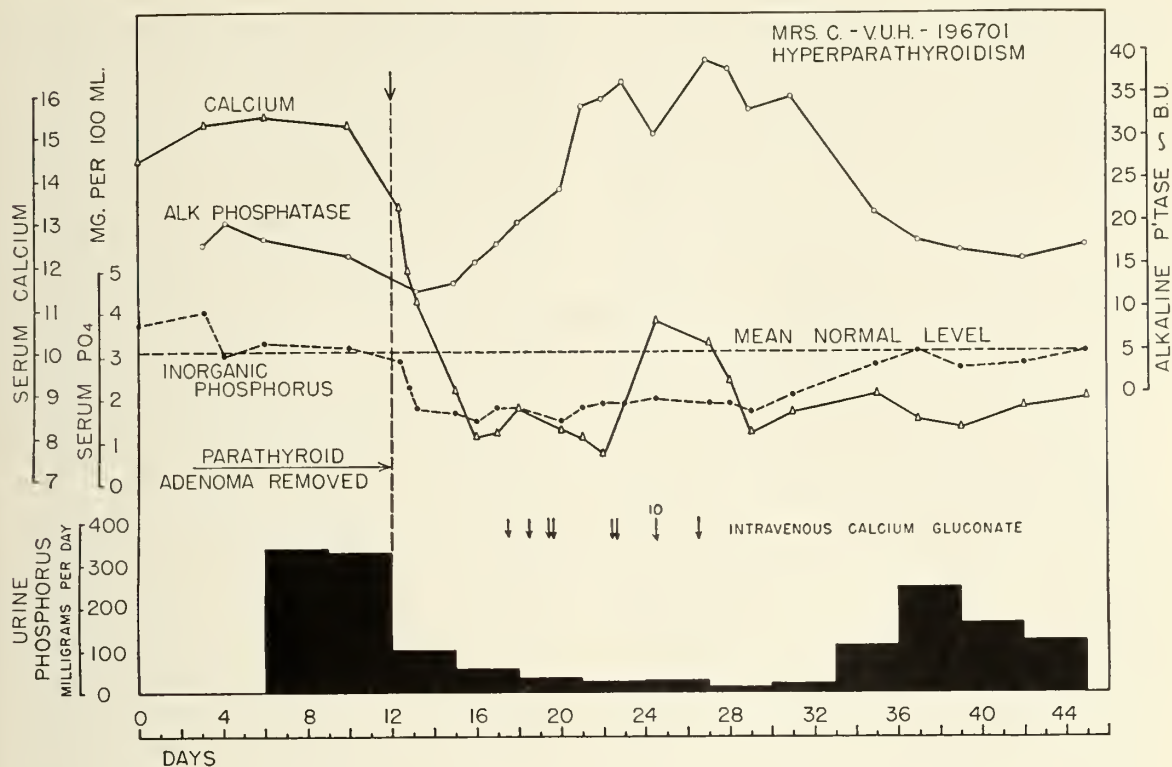


Fig. 1. Note the high serum calcium and essentially normal inorganic phosphorus concentration prior to operation; their decrease after removal of the parathyroid adenoma with the concomitant decrease in urinary phosphorus. During the post-operative period tetany occurred in spite of a high calcium intake and intravenous calcium gluconate was employed. Each  $\downarrow$  signifies the administration of 10 mg. of 10% calcium gluconate (90 mg. of calcium). Note also the rise in alkaline phosphatase during the period of skeletal stress imposed by tetany.

her history to the extent that about a year ago she entered another hospital for study from the standpoint of gastrointestinal disease though none was found. She was given fairly simple regime of soft diet, tincture of belladonna, phenobarbital and all symptoms disappeared promptly.

About 2 months ago she developed edema of both legs without any demonstrable cardiac lesion. (She works as a telephone operator sitting at a desk all day.) I tried her on a low sodium diet for about 10 days. She became much worse and the low sodium diet had to be discontinued, since she got much weaker during that brief period. For the last month, during which I have not seen her, she has developed a history of paroxysmal tachycardia. I have not seen her during such an attack. Her electrocardiogram has changed a good deal lately with lowering of the R waves in V2 and 3. She had some chest pain about a month

ago which was the last time that I saw her before the episode during which she broke her leg.

I did not suspect that she had hyperparathyroidism, and I must say that the student on the ward of the surgical service whose name I don't know was the man who as far as I am concerned made the correct diagnosis on this lady.

DR. ALBERT WEINSTEIN: Was any comment made regarding the bones during the time of the G. I. series in the other hospital?

DR. KENNEDY: No. Though she had several blood chemical tests they did not include calcium nor phosphorus.

DR. TILLMAN: Before entering on debate and theory we should consider the more concrete material available relative to this situation. In particular we turn to the roentgenologic aspects of hyperparathyroidism and ask Dr. Hudson to comment on



the studies done on this patient and in the field in general.

DR. GRANVILLE HUDSON: This is the plain film of the abdomen. The striking thing is the punctate calcification scattered throughout both kidneys. We also note the generalized demineralization of all portions of the bones which are visualized on this film. The film of the femur shows satisfactory alignment of the fracture. We were able to obtain only one view of the skull and that was the right lateral one. This shows a granular type of atrophic change. The hands are especially interesting in that, in addition to the osteoporosis, we find an ovoid cystic change in the proximal phalanx of the fourth finger and also some narrowing of the interphalangeal joint spaces. (I believe her history gave a story of joint pains some years before.) I think the latter is probably a rheumatoid change. The other findings are those of the atrophy and cystic change in this phalanx. Some cases of hyperparathyroidism show loss of the margin of the terminal phalanges and a fenestrated appearance of the cortical portion of the metacarpals. These are not clearly visualized in this case. There are some definite atrophic changes visualized in the cortical margins of all the bones of the hand.

Here is a film of normal teeth, demonstrating very clearly the dense white line of the lamina dura. This is a very good method of determining the presence or absence of generalized osteoporosis. Here is a dental film from this case. There is no suggestion of the lamina dura in the molar area. In consideration of the spine in this case we have our views limited solely to the anterior projection; the demineralization is marked.

I have selected some films from a case here at Vanderbilt some years ago. Here we find the changes of bone atrophy more pronounced than we find in the case presented today. There are also definite cystic changes in the bones and the skull presents the same granular change as visualized in our case today. This is a manifestation of generalized atrophy. We see clear-cut cystic changes in the distal ends of the long bones, in addition to the changes of atrophy,

shown especially well here in the distal shaft of the fibula. Osteoporosis of the spine is marked but the so-called fish-type vertebra has not developed to any extent. This clearly demonstrates the subperiosteal cortical atrophy in the femur. In this patient of several years ago, as in today's case, a fine punctate, stippled calcification is present throughout both kidneys. From the X-ray standpoint, the striking things are the loss of the lamina dura of the tooth sockets and the generalized demineralization. Since we are dealing with a metabolic disease the atrophic changes in the bones are generalized, and the changes noted in the lamina dura are of benefit in differentiating hyperparathyroidism from polyostatic demineralization not of a generalized type.

DR. TILLMAN: Dr. Towery is interested in this condition and has been involved in the study of this patient. I'd like to turn the conference over to him now so that at the end, if there are any questions, they may be directed to him.

DR. BEVERLY TOWERY: I have looked for a long time to find a patient with primary hyperparathyroidism. Now that the long search has apparently ended I would like to submit the evidence in support of this diagnosis. I think it's important to point out that the first parathyroid adenoma was successfully removed in 1925, and the first one in this country, I believe in 1926.

At the onset I would like to point out that parathyroid overfunction has been divided, for purposes of discussion and etiology, into two main categories. Thus, *primary hyperparathyroidism* in which the overfunction of the gland is not a response to an increased need for parathyroid hormone, and *secondary hyperparathyroidism* in which there is a need for increased hormone production. Three examples of the latter may be recalled: pregnancy, very low calcium intake or rickets and renal failure with acidosis associated with phosphate retention.

I am sorry a surgeon is not here to discuss the morphological characteristics of the parathyroid glands in the situation under discussion, but I will try to cover that

item as briefly as possible. It is important to realize that about 88% of the patients who have primary hyperparathyroid function show at operation or at autopsy a solitary adenoma composed of the chief cells of the parathyroid. In the remaining cases all four parathyroid glands may be uniformly involved by the hyperplastic process. The differentiation of the adenomatous from the hyperplastic process at operation is obviously an important one. If the surgeon does not realize and cannot determine immediately which he is dealing with, the removal of a small amount of a single hyperplastic parathyroid gland will not cure the patient whereas the removal of the total hyperfunctioning adenomatous tissue will. Rarely more than one adenoma may be present. The rare primary hyperplasia is quite different histologically from secondary hyperplasia. The ectopic location of the parathyroid glands and the difficulty in locating them at operation sometimes presents a very difficult problem. I would like to point out, however, that it may be difficult to obtain unequivocal chemical data in support of radical exploration of the neck or mediastinum. The classical Captain Charles Martel at the Massachusetts General Hospital was explored 7 times before a parathyroid adenoma was found deep in the mediastinum. Therefore it is very important that the clinical biochemist and internist accumulate, if possible, unquestioned data in order to insist that the surgeon look and keep looking under such circumstances.

The characteristic chemical changes as Dr. Minot has pointed out are about as follows. The serum calcium concentration sometimes reaches excessively high levels.\* A low serum phosphorus concentration is found and of all the changes which occur the lowness of the serum phosphorus concentration is, with one limitation, the most critical. If there is bone disease the alkaline phosphatase is characteristically elevated.

This is an index not of the severity of the hyperparathyroidism but of the severity of the bone disease as shown by the rate at which bone regeneration is going on. In the presence of a perfectly adequate dietary intake disease of bone may not occur, but almost always it will be possible to demonstrate that the patient is excreting large amounts of calcium and phosphorus in the urine. If the dietary intake is high, and in certain cases with rapid bone resorption even on low calcium and phosphorus intake, the renal excretion may be enormous. The patient has not exhibited an excessive renal loss of calcium. Her daily excretion of calcium has ranged in the neighborhood of 150 mg. per diem which probably represents negative calcium balance on her current diet.

This brings us to the consideration of whether hyperparathyroidism is primarily a disease of bone or whether it is a disorder of mineral metabolism in which disease of bone is a relatively common complication. I believe that the latter is the probable explanation. This accounts for the fact that not all patients with unequivocal hyperparathyroidism have disease of bone, demonstrable either by X-ray, biopsy or by an elevation of the alkaline phosphatase. It is hard to reconcile this fact with the premise that parathyroid activity is primarily concerned with a direct effect on bone. The kidney is the organ which eventually suffers the most severe damage in hyperparathyroidism due to the renal excretion of large quantities of calcium and phosphorus. Hyperparathyroidism should always be considered in patients with renal stones. It has been stated that about 5 per cent of all bilateral renal stones are due to hyperparathyroidism. Our experience does not suggest such a high incidence of hyperparathyroidism among patients with nephrolithiasis in Tennessee. However, it is quite possible that we are not sufficiently alert in suspecting parathyroid disease and occasionally fail to diagnose it.

From an academic standpoint it is notable that one patient in the Massachusetts General Hospital series had neither bone nor renal disease but had the unmistakable signs and chemical changes of hyper-

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\*Serum calcium values should always be interpreted in relation to the serum protein concentration. (Reference to the nomogram of McLean and Hastings shows that the "ionized" calcium in this patient was 7.5 mg.% as compared to a normal of 4.5-5.5 mg.%.)



parathyroidism—that is the low serum phosphorus and high serum calcium concentration. As a result of these chemical changes such patients exhibit a good many of the signs and symptoms of which our patient has complained. These are weight loss, weakness, lassitude, anorexia, inability to eat satisfactorily, nausea, vomiting, bone pain and pathological fractures and deformities of the bones. It is probable that the symptoms which do not pertain to the skeleton are related to the hypercalcemic state, since they occur under other circumstances which elevate the serum calcium level, notably vitamin D poisoning.

According to the X-ray findings of severe skeletal demineralization it may be inferred that the renal loss of calcium and phosphorus has been excessive and probably prolonged. It is not surprising therefore that there is evidence of impaired renal function. A plain film of the abdomen showed no evidence of nephrolithiasis but did show nephrocalcinosis—clusters of fine deposits of calcium within the renal parenchyma. It appears likely that this adequately explains the elevation of the non protein nitrogen and the fact that serum phosphorus concentration is not as low as one expects in primary hyperparathyroidism. One always hesitates before making this diagnosis when the serum phosphorus is not low. However it is well known that in primary hyperparathyroidism the progressive impairment of renal function ultimately leads to phosphorus retention and a rise in the serum concentration thereof. This accounts for the essentially normal serum phosphorus level in this patient rather than through the low concentration (for example—2.0 mg. per cent) which would enable one to make a diagnosis of primary hyperparathyroidism without reservation. In patients who exhibit bone disease and hypercalcemia the finding of a significant lowering of the serum phosphorus concentration is important because it tends to exclude several diagnostic possibilities from consideration.

In this patient, however, we are faced with the following diagnostic problem. Does the patient have primary hyperparathyroidism or does she have, as suggested by Dr.

Kennedy's observations, progressive chronic renal disease with acidosis, nitrogen and phosphorus retention and secondary hyperparathyroidism to account for the striking hypercalcemia?

In an attempt to answer this question I have looked up the blood chemical changes in some 30 reported cases of hyperparathyroidism secondary to renal acidosis. Almost always the serum calcium was low rather than high and marked phosphorus retention was the rule. Characteristic findings were: serum calcium concentrations of 6-7 mg. per cent and phosphorus concentrations of 7-9 mg. per cent. Only one example of significant hypercalcemia was found (one serum calcium of 13.7 mg. per cent was recorded for one patient.) The important point is that ionized calcium tends to fall as phosphorus is retained whereas in our patient the ionized calcium is quite high. I believe that this degree of "overcompensation" does not occur in secondary hyperparathyroidism. Furthermore the acidosis and nitrogen retention is usually much more severe in secondary hyperparathyroidism than in the patient under discussion.

It is important to note that it may be impossible for the roentgenologist to differentiate primary from secondary hyperparathyroidism. Also in the terminal stages the two may be identical from the biochemical standpoint and the bone shows only minor histologic differences. Obviously it is important to know which came first—the hypercalcemia and hypercalciuria or the chronic renal acidosis, and if this fact cannot be established the diagnosis may remain equivocal even in spite of parathyroid exploration.

There is considerable disagreement concerning the exact pathogenesis of the bone changes in secondary hyperparathyroidism. It appears likely, however, that the chronic acidosis is responsible and not the state of hyperparathyroidism. The low serum calcium level, not the high serum phosphorus level, serves as the stimulus to increased parathyroid activity and parathyroid hyperplasia.

I would like to object mildly to the use of the word osteoporosis in this case. I

think it was meant to imply skeletal demineralization or osteitis fibrosa rather than osteoporosis which we regard as an entirely different entity—most commonly seen in women after the menopause. The latter is not associated with any of the chemical changes noted here and is rarely to be confused clinically or chemically with hyperparathyroidism. From the standpoint of differential diagnosis the absence of the lamina dura about the teeth is important. It does not disappear in osteoporosis but is frequently absent when skeletal demineralization has been extreme.

Let me reiterate the fact that in the presence of primary hyperparathyroidism with hypercalciuria and hyperphosphaturia the kidney is the organ of greatest concern. For that reason this patient is on a low calcium diet. We might actually give this patient enough calcium and phosphorus by mouth to heal her skeletal lesion. Such a plan of therapy would almost certainly produce further renal damage, and we hope that if the parathyroid adenoma is removed promptly there will be a significant improvement in renal function. It is to be hoped that the nephrocalcinosis will regress following cure of the hyperparathyroidism levels. There has been one very interesting case reported in the literature in which the sequence of events was apparently as follows. The patient developed a parathyroid adenoma then, as hypercalciuria continued, progressive renal insufficiency occurred. The phosphate retention ultimately caught up with the adenoma and depressed the serum calcium to such a point that more parathyroid hormone was needed. As this occurred the non-adenomatous parathyroid tissue underwent hyperplasia. Thus the patient eventually had both primary and secondary hyperparathyroidism. In primary hyperparathyroidism with phosphate retention the differential diagnosis may be very difficult. However, I believe that this patient has a parathyroid adenoma or the less common diffuse hyperplasia and should be explored for it. With demonstrable bone disease and a high alkaline phosphatase, the very high serum calcium in the face of only slight or equivocal phosphorus re-

tention constitutes the best single bit of evidence for this diagnosis.

DR. TILLMAN: I see Dr. Benz just walked in and we would like to have a comment on the surgical management of this patient.

DR. EDMUND BENZ: The surgical management implies the exploration of the neck and other areas which may be the site of the parathyroid glands including the parathyroid adenoma. It is an attempt to find an adenoma to prove that the patient has hyperparathyroidism due to such a lesion. The technical procedures which are involved are not too difficult in themselves unless one has to explore the mediastinum. The parathyroid glands normally are situated in the posterior portion of the thyroid gland, extracapsular as far as the thyroid gland is concerned but closely applied to it. The superior parathyroid glands normally are located near the superior pole of the thyroid and are somewhat closer to the midline than the midportion of the gland itself. The inferior glands have a more varied position. They can be either in the capsule of the thyroid or closely applied to the capsule posteriorly in the areolar tissue behind the trachea and the esophagus or may be situated either in the upper or posterior mediastinum. When a tumor is felt preoperatively the exploration is similar to that for removal of the thyroid gland and can be done under local anesthesia, which in some instances is desirable. However, if nothing is found in the posterior capsule of the thyroid gland or in the region around the trachea and esophagus, longitudinal splitting of the sternum is necessary in order to explore satisfactorily the mediastinal contents. I believe that one of the earliest patients, on whom the diagnosis of hyperparathyroidism due to adenoma of the parathyroid gland was made, had numerous ectopic areas of parathyroid tissue so that the full extent of the dispersion of the parathyroid adenomata was never determined. This patient I believe is the one who is always discussed in classes in physiology as being the classical, and one of the first patients on whom the parathyroid adenoma had been demonstrated, and on whom a great deal of the



physiology of the parathyroid gland was studied.

Postoperatively, if the parathyroid adenoma has elaborated the parathyroid hormone thereby suppressing the normal glands, one may expect parathyroid tetany until the normal glands have had a chance to resume their function. This, however, is usually transient and can be controlled by the use of calcium and occasionally, though not recommended, by the use of parathormone. Parathormone might help to continue the suppression of the activity of the glands left behind and presumably normal.

I have here charts of two patients who have had proved parathyroid adenomas and I would like to give you the calcium and phosphorus levels in these cases. The first was that of a 50 year old woman who was seen in 1935. The first calcium determination was 12.9 mg. per cent and a phosphorus of 3. All determinations were within a few tenths of a milligram of each other. Postoperatively the calcium level was 13.5 mg. per cent, the phosphorus 2.8. An adenoma was removed from this patient; she did demonstrate parathyroid tetany. The final levels on her were 9.8 mg. per cent and 10.2 mg. per cent for calcium and 2.2 and 1.79 mg. per cent for phosphorus. The second patient is one I remember very well coming in on the Orthopedic Service. She had all the clinical evidence of a mechanical disorder of the back, but during the routine workup calcium and phosphorus determinations were made. The initial findings were a calcium of 19.8 mg. and a phosphorus of 3.6 mg. per cent. These were repeated and the lowest was 17.8 for calcium and 2.83 mg. per cent for phosphorus. Examination of the neck revealed a small nodule which was just barely palpable in the lobe of the thyroid gland. This nodule, which turned out to be an adenoma, was removed and following operation the serum calcium and phosphorus values dropped to 10.6 and 1.9 and to a low level of 9.4 and 1.9 mg. per cent respectively. This patient did not demonstrate postoperative parathyroid tetany. She was a younger woman. What was the alkaline phosphatase? It was 4.36

units, preoperatively and 6.4 units following operation.

DR. TILLMAN: Are there any questions?

DR. WEINSTEIN: Dr. Towsery has underrated the huge calcification of the kidney itself as a differential between primary and secondary hyperparathyroidism. We never see this amount of renal calcification as a manifestation of chronic acidosis associated with chronic anemia.

DR. TOWERY: I think, Dr. Weinstein, though it is not common, there are reports in the literature, and particularly in the study of children with renal dwarfism, of instances of severe nephrocalcinosis. I'll admit that this doesn't suggest enormously high calcium excretion or very prolonged moderate calcium excretion. Incidentally, of all the instances of tetany you will be called upon to treat, the ones occurring after the removal of parathyroid adenomas in the presence of severe bone disease are the most difficult to control and sometimes are very intractable for many weeks. All the calcium and phosphorus goes into the bone and you can't keep extra calcium in the extracellular fluids. Tetany is a serious problem.

DR. KENNEDY: In our thinking about this patient the problem as to whether or not the patient has primary hyperparathyroidism or a secondary one due to renal disease has been the \$64 question. For the sake of argument I've taken the viewpoint that this patient has had chronic renal disease and has developed secondary hyperparathyroidism and Dr. Towsery has taken the other viewpoint just for purposes of elucidation and argument. I'm not entirely in agreement that this patient has primary hyperparathyroidism. In a series of 162 proven cases of parathyroid adenoma, which I was able to locate in one of the journals a few nights ago, none of the serum phosphorus levels were higher than 2.5 in any case. Now that included patients with parathyroid adenomas only, not necessarily complicated by renal disease. Seventy per cent of them were lower than 1.5 mg. and none of them were higher than 2.5 mg. Some of those patients had high levels of blood calcium. Now it's quite true that in patients with complicating renal disease,

which may occur after years of renal damage, the phosphorus retention may alter the circumstances a whole lot. This is the crux of the problem because we're going to have to make a decision as to whether or not a surgeon is to explore this patient who already is in mild acidosis and uremia. I would like to have Dr. Minot and Dr. Towery to comment again on that problem.

DR. TOWERY: She is not in acidosis. That was one of the points.

DR. TILLMAN: Let's settle the first question before we get into another one. Dr. Minot, would you like to answer the first question?

DR. MINOT: Well, if I can. I mean at the present time she's really not in uremia and the NPN is 40. I think one thing that makes you feel that her kidney is not severely damaged at the present time is the very fact that it has responded as much as it has during the time we have been observing her. I believe if the kidney were a primary part of the whole picture one would be surprised, after observing her for 10 days, to see the NPN come down as readily as it has.

DR. TILLMAN: I take it, Dr. Minot, that neither you nor Dr. Towery has any doubt that this is primary hyperparathyroidism.

DR. TOWERY: If she has primary renal disease, it'll be the first case in the literature, I think, with this degree of disassociation between the calcium and the phosphorus. Incidentally I'll show you a case in Allbright's book that had an adenoma taken out. The point is, I will grant Dr. Kennedy,

the physician, has the right to consider academically that the patient might have chronic renal acidosis, but if you're going to keep from exploring her neck and let her progress, then we part company. I think she has primary hyperparathyroidism.

DR. MINOT: We're also glad that this is not a real argument. In secondary hyperparathyroidism, secondary to renal disease, we think of it as a compensatory thing because of the lowness of the calcium which results from phosphorus retention. We don't have many instances in the body where a compensatory effect overdoes the situation.

#### *Follow-up Note*

On February 26, 1951 an operation was performed. A yellow, lobulated adenoma was found in the region of the left lower parathyroid gland. After the diagnosis had been confirmed by frozen section and two normal parathyroids had been identified the adenoma was removed. Because of the severe bone disease and renal impairment, a portion (estimated at 0.18 gm. or 3% of the weight of the tumor) of the adenoma was left. The serum calcium level fell sharply after operation and from the fourth to the fourteenth postoperative day the patient experienced episodes of tetany in spite of a high calcium intake. Although tetany was promptly relieved by intravenous calcium gluconate, the patient fractured her left femoral neck during an episode of hypocalcemia.

In spite of this complication the patient's condition improved steadily, and at the time of discharge the serum calcium concentration was 9.0, the inorganic phosphorus 3.1 mg. per cent and the alkaline phosphatase 17.5 B.U. Similar values for calcium and phosphorus were obtained three months after operation; the alkaline phosphatase had fallen to 7.4 G.U. and the patient's condition was markedly improved. (See Fig. 1.)



## UNIVERSITY OF TENNESSEE CLINICAL PATHOLOGICAL CONFERENCE\*

H. B., a 65-year-old colored janitor, was first seen in the Gailor Diagnostic Clinic on July 3, 1950 complaining of cold, numb hands and feet for 6 months. He had been constipated, had noted umbilical tenderness and suffered postprandial fullness for 2 weeks, all of which was entirely new to him. The presence of melena was questionable. He had noticed difficulty starting the urinary stream during the past few months and complained of urinary retention. He had lost 20 pounds in the past year and had suffered recently from tenderness of the rectum and both hips.

His blood pressure was 210/100 mm. Hg., he was mentally alert and cooperative. The tongue was normal except for tremulousness and mucosal pallor. The fundi revealed only A-V nicking. There was left ventricular enlargement, confirmed on X-ray examinations, a soft diastolic murmur at the aortic area, and a Harrison's groove chest deformity. There was conscious tensing of the abdomen, but masses interpreted as feces in the colon and sigmoid were noted. There was generalized motor weakness but reflexes and sensation were not tested. The prostate was slightly enlarged; slight ankle edema was noted and there was a scabetic infestation of the trunk.

Laboratory studies at this time included a negative Kahn, urine, X-ray examinations of the upper and lower portions of the gastro-intestinal tract. Hgb. 10.9 Gm., red cell hypochromia, WBC 4,600/mm<sup>3</sup> with a differential of neutrophilic segmenters 52%, eosinophils 3%, lymphocytes 44%, and monocytes 1 per cent.

He was treated with vitamins, scabicide and minimal sedation. Twenty days later his condition was unchanged and iron was added to his therapy. He missed his next clinic visit.

Three months later he was carried into the Out-Patient Department having been unable to walk for a month; the paresis had developed slowly. On admission to the John Gaston Hospital the hypertension noted above persisted and his pulse was 100. He was more poorly nourished, but was lucid in speech. No abnormalities of the head, neck and chest were observed other than those noted above. No papilledema nor adenopathy were found. The lower extremities were semiflaccid and involuntary movements and twitches were noted. There were no trophic changes. Dorsalis pedis pulses were not palpable. Tendon reflexes were hypoactive in the upper extremities and hyperactive at the knees. Achilles reflexes were absent. There were no sensory changes on careful examination.

Laboratory studies included a negative urine with a sp.gr. of 1.027 and negative blood Kahn.

The NPN was 54 mgm. % hematocrit of 22% with a buffy coat of 0.5 mm. The differential count was practically unchanged with the exception of an eosinophilia of 6 per cent. The red cells were mostly hypochromic and normocytic with some few hyperchromic macrocytes seen. The spinal fluid was clear and the initial pressure was 100 cc. water. The Queckenstedt test was negative. There were 73 RBC non-crenated per cmm., no WBC. The protein was 36 mgm. % and the Kahn negative. Total blood protein was 6.5 Gm. per cent. Plasma Ca, Na, K, Cl and erythrocyte Na and K were all within normal limits.

X-ray of the spine showed loss of the lumbar lordosis with hypertrophic arthritis. There was nothing unusual about the abdomen except for a marked amount of fecal material in the colon.

Neurologic consultation was obtained. No specific therapy was administered and after demonstration in the hospital he was discharged to Neurology Clinic at which he again failed to report.

Five weeks later he was brought into the Receiving Ward by stretcher. His bladder was distended by 800 cc. of urine. Mentally he was obtuse; his family gave a history of his recent incontinence of urine and feces. His pulse was 120. There was marked mucosal pallor, the tongue was smooth and his physical condition otherwise unchanged. The cranial nerves were intact, the patellar and achilles reflexes were hyperactive on the right. Babinski test was negative. There was only minimal nociperception of the lower extremities. The prostate was again only slightly enlarged. Moderate pitting edema of the lower extremities persisted.

Laboratory studies included X-rays of the chest and lumbar spine unchanged from the previous admission. Kahn was negative. The WBC were 9,250/mm<sup>3</sup> with a differential picture essentially unchanged. The red cell count was 1.3 million/mm<sup>3</sup> with less than 7.5 Gm. of Hgb. and with micro-, macro-, poikilo- and anisocytosis. The serum bilirubin was 0.6 mg. % total, prothrombin concentration 67 per cent. A spinal tap revealed findings similar to those previously with the exception of a RBC count of 1.

The injection of liver and vitamin B<sub>12</sub> resulted in no noticeable neurologic response and his condition deteriorated steadily for the 7 terminal weeks. Hematologic consultation was obtained and his severe anemia persisted in spite of the administration of the plus multi-vitamins, iron, folic acid, oral liver. His reticulocyte count averaged 1% and rose to a disappointing 10% for one day only. Total protein of 6.6 Gm. % fell to 5.9 and remained at this level, the A/G ratio remaining normal throughout. The NPN rose from 26 mg. % to 108. A persistent pyuria and bacilluria of gram negative and positive rods was noted, apparently becoming resistant as chemotherapy was repeatedly changed. A blood culture was positive for *Aerobacter aerogenes*, anaerogenic *Proteus vulgaris*, and *Alcaligenes fecalis*. His temperature reached 102-104° frequently. Hemorrhagic bullae

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developed over the extremities and partially subsided following the withdrawal of sulfonamides. A total of 2000 cc. of blood was administered. The terminal episode consisted of inability to cough and respiratory failure.

**DR. CHARLES J. DEERE:** Upon casual reading of this protocol, the initial impression was that it presented a difficult diagnostic problem. Close study, however, has led me to such a definite conclusion that I feel somewhat hesitant in eliminating all other possibilities. We may assume that this case was selected for discussion because of its teaching value, both to clinicians and to students. As a teaching measure, I shall point out certain inadequacies or omissions in the protocol, suspecting that some of these led to erroneous diagnoses but realizing that some of the omissions may be intentional. With all of the information desired this case may have been relatively simple.

It seems well to concentrate first on the features of the illness which can be considered factual. These include urinary bladder dysfunction with retention and incontinence of urine, persistent pyuria and bacilluria, moderate to high fever, rising blood NPN and a blood culture positive for three common invaders of the urinary tract. It is quite logical to conclude that the terminal picture involved septicemia secondary to pyelonephritis, and pyelonephritis secondary to urinary tract dysfunction. We shall have to account for the urinary tract dysfunction.

This patient's complaint when first seen in the clinic, was "cold numb hands and feet for some six months." The protocol states that reflexes and sensation were not tested. The examiner obviously lacked the time or inclination to perform an important part of the examination. Subsequently the patient developed paraplegia, making the presence of a neurologic lesion certain. Although this patient is in the age group in which prostatic hyperthrophy is a common cause of bladder dysfunction we must suspect a neurologic cause.

It is conceivable that peripheral neuropathy can produce a bladder dysfunction.

Exaggerated reflexes and the absence of pain, however, argue against peripheral neuropathy. Normal cerebro-spinal fluid findings, along with absence of pain, are helpful in ruling out a spinal cord tumor. At the first hospital admission it is recorded that no sensory changes were demonstrable. We could place more reliance on this examination had it been stated that position and vibratory sense were normal. The atonic bladder, difficulty in walking and the presenting complaint of numbness of the hands and feet are linked with disturbed sensation and suggest a diffuse spinal cord lesion.

In review of organ systems for leads, we will consider first the alimentary tract. He had lost 20 pounds in a year and for two weeks complained of constipation, tenderness about the umbilicus and post-prandial fullness. These complaints, although somewhat vague, with the questionable history of melena and anemia, described as hyperchromic, required consideration of chronic blood loss from the alimentary tract. It seems odd that stool examination is not described but upper gastro-intestinal and barium enema X-ray studies revealed no abnormality. It should be emphasized that these X-ray studies in competent hands are fairly reliable but not absolute measures for eliminating bleeding lesions. We must conclude then that the record provides no evidence for gastro-intestinal tract pathology.

The diastolic blood pressure of 100 mm. is of little significance in an individual of this age. The pressure recorded is characteristic of loss of elasticity of the aorta. "There was left ventricular enlargement, confirmed on X-ray." This information is a most inadequate description of heart size. The record provides no information to indicate functional impairment of the heart. The soft aortic, diastolic murmur is probably not organic but related to the patient's anemia. If organic, the murmur is probably due to a sclerotic valve which is of no particular clinical significance.

We are not given the findings of conclusions of the neurological consultant. The statement that the patient was discharged to neurology clinic after demonstration in the hospital, suggests the diagnosis of some



unusual condition for which there is no remediable therapy.

With multiple system involvement, possibly periarteritis nodosa is due consideration. It may affect almost any system of the body. It can involve the vessels nourishing nerve trunks, producing peripheral neuropathy or cord lesions. Several observations tend to exclude periarteritis nodosa from serious consideration. The patient was afebrile and had no leukocytosis or urinary abnormality prior to development of urinary infection. Another disorder which may present bizarre and varied symptoms with neuropathy, is porphyrinuria. The neuropathy in porphyrinuria leads to pain and is not typically associated with anemia. This diagnosis should be considered no more than a remote possibility in the absence of porphyrins in the urine.

We must now consider the hematologic picture. At the first clinic visit, a hemoglobin value of 10.9 Gm. was recorded and the erythrocytes were described as hypochromic. The erythrocytes were not enumerated, but it should be pointed out that hypochromia with approximately 11 Gm. of hemoglobin requires an erythrocyte count of 4 million or more per cubic millimeter. Erythrocyte counts and hemoglobin determinations of these levels are not infrequently seen in apparently healthy individuals at John Gaston Hospital. Such anemias are due to iron deficiency, either of dietary or blood loss origin. Upon admission to the hospital in October, the hematocrit was definitely reduced to 22 per cent and the buffy coat was within normal limits. Again we have no enumeration of erythrocytes and the stained smear was described as mostly hypochromic, normocytic, with some few hyperchromic macrocytes. A hematocrit of 25 per cent and hemoglobin of 9 Gm. recorded at the next clinic visit provides information from which a saturation index can be calculated. The saturation index is almost exactly 1.0, which establishes the fact that the patient did not have a hypochromic anemia. Hyperchromic anemias are not associated with supersaturation of the erythrocytes with hemoglobin. At the last hospital admission, microcytes and macrocytes are described in the peripheral

blood smear. During the last hospital admission, the reticulocyte count averaged 1 per cent. On one day only, a disappointing 10 per cent reticulocyte count was observed. I would suggest that the failure to obtain the expected reticulocyte count can be accounted for by the presence of complications which had arisen by that time. During this period the patient was febrile, had a rising blood non-protein nitrogen and doubtless had inadequate iron and protein stores.

Price-Jones has shown that the patient with pernicious anemia may have extreme variability in the size of erythrocytes. This variability in size is more characteristic of pernicious anemia than high mean corpuscular volume. The neurologic changes in this patient are also highly suggestive of pernicious anemia. The nervous system involvement may precede by several years the development of significant anemia. The damage involves predominantly the posterior and lateral columns of the spinal cord but may involve peripheral nerves and the cerebrum as well. The earliest evidences of involvement of the nervous system in pernicious anemia are subjective, such as the paresthesia presented by this patient at his first clinic visit. Upon one examination the tongue was described as tremulous and pale and later it was described as smooth and pale. The tongue changes are not necessarily characteristic and may be a late manifestation in pernicious anemia. Vague gastro-intestinal complaints and weight loss such as this patient experienced are not infrequent in pernicious anemia.

Pernicious anemia is the best possibility in accounting for the varied symptoms and signs manifested by this patient. The bladder dysfunction is attributed to spinal cord involvement. Pyelonephritis is the result of the bladder dysfunction and septicemia the result of pyelonephritis. The possibility of a terminal broncho-pneumonia should be mentioned since this is frequently the immediate cause of death in such chronically ill individuals.

Dr. Deere's diagnoses:

1. Pernicious anemia with (a) posterior and lateral degeneration of the spinal cord.

(b) urinary bladder dysfunction, (c) pyelonephritis, uremia and septicemia.

2. Terminal broncho-pneumonia.

Pathologic diagnosis:

Pernicious Anemia with:

(A) Posterior and lateral degeneration of the cord

(1) Cystitis

(2) Bilateral pyelonephritis

(3) Uremia and septicemia

(B) Atrophic gastritis

(C) Mild hemosiderosis of the liver and spleen

Mild calcific aortic stenosis

Mild visceral arteriolosclerosis

DR. RUSSELL S. JONES: This case presents the classical pathologic changes of pernicious anemia with the added complication of urinary tract infection. At autopsy there was a suggestion of mild icterus in many of the viscera, being most noticeable in the endocardium. The liver weighed 1200 Gm. and had an unusually distinct lobular architecture. The brownish coloration of the liver was due to the ochre-colored pigment in Kupffer and hepatic cord cells. Some of this pigment gave a positive Prussian-blue reaction for iron while other pigment did not. There were some vacuoles of fat in the cord cells near the central part of the lobules. The spleen weighed 90 Gm. and also showed some hemosiderin pigment in sinusoidal phagocytes. The stomach at the time of autopsy was not distended. Its rugal folds were reduced in number and size. Between the folds the gastric mucosa had a finely granular appearance. Microscopically the gastric mucosa appeared like that of the colon. The chief and parietal cells had disappeared, and the crypts of Lieberkuhn were lined by the mucous secreting cells. Some of the little crypts were dilated near the basal tips, forming little cystic spaces in cross-section. There seemed to be an increased number of mononuclear leucocytes in the submucosa between the crypts and occasionally a cell with abundant amount of eosinophilic refractile cytoplasm could be seen among these mononuclear leucocytes. There was no change in the rest of the gastric wall nor in the rest of the intestinal tract.

One kidney was of rather large size, weighing 250 Gm. and having a bifid pelvis. The other kidney was rather small in size, weighing only 80 Gm. and having a diminished number of pyramids suggesting that it was a congenitally small kidney. Thus, the opposite or larger kidney probably had undergone a compensatory hypertrophy. Both kidneys, however, showed some cortical mottling suggesting pyelonephritis. This is confirmed on microscopic examination. There were many local areas of polymorphonuclear leucocytes, intact as well as degenerating, in the tubules of the cortex and medulla. Some of the glomeruli showed some crescent-like structures formed of abundant fibrin intermingled with what appeared to be parietal epithelial cells. This is probably due to the pyelonephritic process. There were many mononuclear and some polymorphonuclear leucocytes in the interstitial tissue. No old areas of scarring suggesting a chronic pyelonephritis were seen. The pelvis of the kidney showed a mild degree of leucocytic exudation and hyperemia and there was a moderate inflammation in the urinary bladder. Some of the arterioles were definitely sclerotic not only in the kidney but about the capsule of the adrenal as well.

The heart weighed only 260 Gm. It is surprising that the heart did not weigh more since there was some impression of its enlargement upon the X-ray examination and one would also think that the arteriosclerosis, though mild, could have been associated with some arterial hypertension and with cardiac hypertrophy. The aortic valve also showed some minor degrees of thickening and increased rigidity about the corpora arantii and the bases of the cusps. The coronary arteries were free of any significant atherosclerosis and it is interesting to note that the aorta showed only a very minor degree of atherosclerosis. One little area of focal scarring was present in the adrenal gland in its inner cortical zone.

The lesions within the nervous system were confined to the spinal cord and medulla. The cord showed a severe degree of demyelination, especially in the lateral columns, with a variable degree of demyel-



inization of the posterior columns, and a mild degree in the anterior columns generally along the region of the pyramidal tracts (see Fig. 1).

The bone marrow showed no significant changes. Numerous blocks were taken of ribs and vertebral bodies, but while some areas appeared hyperplastic, other areas seemed hypoplastic.

Lack of time prevents elaboration upon the pathologic physiology and the metabolic aspects of this case. During the few remaining minutes of this conference Dr. Evans, the resident who saw this case on the last admission, wishes to give us some additional and pertinent information.

DR. A. M. EVANS: The bone marrow was studied more carefully than indicated in the protocol. The rubricytic to leucocytic ratio was 70:30. There was a marked maturation arrest of the rubricytic series with macrocytosis. This is indicated by the following:

	<i>Rubri-</i> <i>blasts</i>	<i>Proru-</i> <i>bricyste</i>	<i>Rubri-</i> <i>cyte</i>	<i>Metaru-</i> <i>bricyste</i>
Normal	1	4	10	20
Patient	5	16	6	15

No gastric analysis was done. We had planned to do one on the patient's terminal admission but meanwhile performed a bone marrow aspiration and arrived at a diagnosis of pernicious anemia by this means. Thus we did not continue with our planned gastric studies. Nor would a gastric analysis have helped differentiate gastric carcinoma with concomitant anemia. The patient also had a terminal diarrhea for the last week of his life. There was no evidence of ulceration of the colon. It was our opinion that this patient had as many microcytes as he did due to the fact that his pernicious anemia picture was generally obscured by his iron deficiency. On his first admission no sensory changes were elicited and amyotrophic lateral sclerosis was considered to be the diagnosis. The vitamin B<sub>12</sub> and liver therapy resulted in the appearance of normal filiform papillae on the previously smooth tongue. It is interesting that under this therapy the glossitis was alleviated, but the neurologic changes were already too advanced to be in any way improved during

his course of observation and definitive therapy.

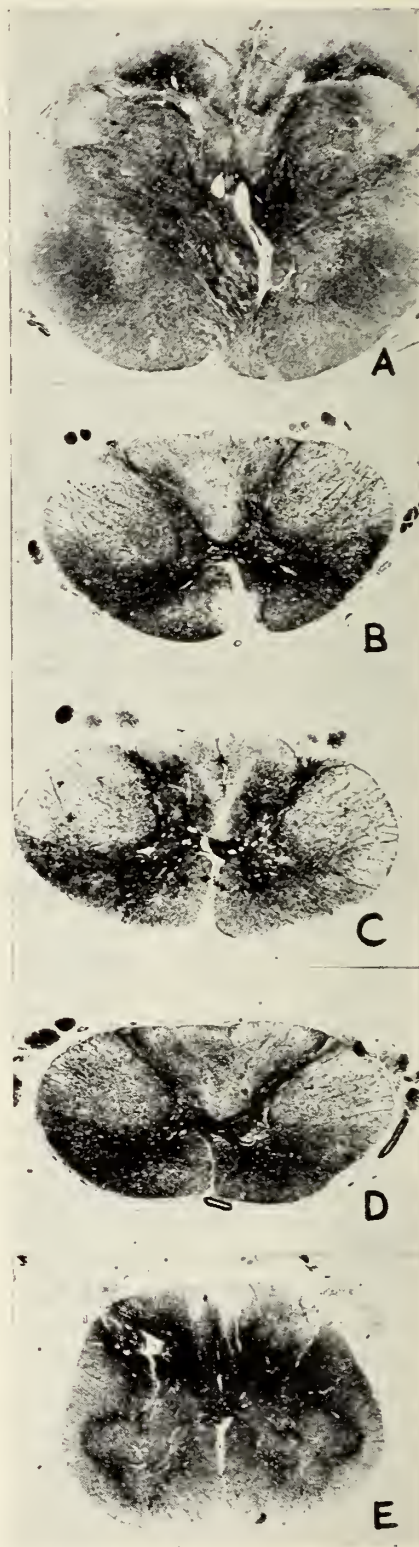


Fig. 1. Demyelination of the posterior and lateral columns is seen in the various cord levels: A. Cervical cord at pyramidal decussations; B. Mid-cervical region; C. Upper dorsal; D. Mid-dorsal; E. Lumbosacral.

# President's Message

## WHAT PATIENTS REALLY WANT



DR. KELLY

ing stronger against State Medicine.

There also is argument over how much medical care the people want. We have reached a point where many people seem to think of medical care as a commodity, like groceries, instead of a sympathetic service. So I have been seeking an answer to the insistent question: What Do the People REALLY Want?

One answer, and a solid one, is found in the May issue of *Medical Economics*. It is the editorial written by Editor-in-Chief H. Sheridan Baketel, M.D. It is certainly worth reproducing here as a message worth telling twice.

"When illness strikes and the patient needs a doctor, what's the first thing he looks for?

"Does he look for the doctor with the biggest reputation? Does he look for the one who'll charge the smallest fee?

"Generally, no.

"He calls the physician he thinks will take the most interest in him. That comes ahead of everything else. 'I want a doctor,' he says subconsciously, 'who'll be concerned with me first, himself second.'

"We once knew a detail man who needed an operation and who puzzled his friends by leaving his home city to go to a small-town

G.P. The explanation was simple: 'He gave me his complete attention whenever I called on him. That's what I need now.'

"The average patient would like to discover this quality of selflessness in everyone who serves him. He doesn't always expect it, say, in an insurance or real estate man. But he does expect it in a physician.

"The personal touch in medicine is nothing new; it's the essence of the traditional doctor-patient relationship. Whenever it's lost, medicine suffers.

"We all know this. Yet we're living at a time when most of the public shouting is about quantity and price—about the need of more health care for more people at lower cost. Physicians, if not careful, may also put the emphasis in the wrong place. The thing to remember is that, no matter how much the patient wants more medical care for his money, his main object is simply a doctor who'll give of himself.

"Those who seek a New Deal in medicine miss the significance of this. If assembly-line methods work in industry, they reason, why not also in the treatment of patients?

"No student of logic would swallow such reasoning. Yet more than one spellbinder has sold it to an unthinking audience.

"Not until the man in the audience gets sick himself does he appreciate that his first need is human understanding. Technical proficiency and bargain rates then rank a poor second.

"The moral can be summed up in eight words: Of what use the hands without the heart?"

*Ernest S. Kelly*



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JUNE, 1951

## EDITORIAL

### TOXIC EFFECTS OF VITAMIN D

One hears not infrequently the casual statement that vitamins are harmless which explains to some extent their common use as a "tonic" or placebo. Though this may be essentially true in the dosage as employed for such purposes, it may lead to loose thinking with respect to at least one vitamin which may lead to irreversible changes and even death.

This editorial is not concerned with the prophylactic use of vitamin D or irradiated sterols in the prevention of rickets, or in the treatment of rickets, osteomalacia or hypoparathyroid tetany. Rather it is concerned with its use in massive doses and for prolonged periods as employed empirically at times in tuberculosis, allergic conditions and more especially in rheumatoid arthritis.

Within the past two decades at least 5 deaths have been attributed to vitamin D intoxication with others in which it was contributory to death.

It is therefore timely that observers at the Massachusetts General Hospital<sup>1</sup> should review the cases of vitamin D intoxication which have been described in the literature adding 7 cases seen by them in 3 years, to make a total of 118 reported cases. If this number of cases has been recognized and reported, it may be safely estimated that several times this number have occurred unrecognized or unreported. This is especially true in light of the extensive advertising done by certain drug houses in the recommendation of vitamin D preparations for a disease so common as rheumatoid arthritis.

Apparently individual susceptibility is variable, since toxic manifestations may appear in several weeks on a dosage as small as 50,000 units daily, whereas others may use a dosage increased tenfold for months before symptoms appear. In the article by Chaplin et al it is indicated there are two preparations on the market available without prescription and containing 50,000 units of Vitamin D per capsule, and furthermore that there are 34 more pure vitamin D preparations in capsule or liquid form with a dosage of 50,000 units per dose.

Most of the cases of intoxication have been in patients for whom a physician had prescribed massive doses for specific disease, the most frequent probably being rheumatoid arthritis. The majority of the reported cases have been in persons in middle or old age. The dosages used have had a spread from a low of 20,000 to a high of 1,000,000 units daily; the more common doses in the cases of intoxication have been from 150,000 to 300,000 units daily.

The syndrome of vitamin D intoxication has consisted of one or more clinical manifestations in addition to certain possible abnormalities shown by laboratory studies. These have been repeatedly described in reports and are summarized by Chaplin and associates. Of systemic symptoms ease of fatigue, weight loss and weakness are the most prominent which may or may not be accompanied by the neuropsychiatric com-

<sup>1</sup>Chaplin, H. Clark, L. D. and Rapes, Marion, Vitamin D Intoxication, Am. J. M. Sc., 221:369, 1951.

plaints of vertigo, headache, paresthesias, stupor and/or depression. The cornea may show band keratitis. Blood studies may reveal normocytic, normochromic anemia. The patient may have nocturia and frequency, and urinary study may show the presence of albumin, red cells, casts and a progressive decrease of renal concentrating ability. Biochemical determinations show elevation of calcium and phosphorus levels, at times slightly raised alkaline phosphatase and progressively rising non protein nitrogen. X-ray films show demineralization of bones in late cases with calcium deposits in peri-articular soft tissues. At autopsy calcium is found deposited in kidneys, heart, blood vessels, lungs, thyroid and pancreas in addition to that in the periarticular tissues. Cysts containing calcium may occasionally be found in the periarticular structures.

Most patients presenting vitamin D intoxication may be satisfactorily treated though death may occur, or irreversible impairment of renal function may persist. If the condition is suspected the cessation of vitamin D intake must be immediate. The reduction of serum calcium may be attained in most instances by the use of a low calcium diet, forced fluids and avoidance of alkalis.

The prevention of toxic states due to vitamin D rests first in the careful observation of patients taking other than prophylactic doses of the vitamin. This should include frequent urinalysis and hemoglobin determinations. Blood calcium determinations if possible should be done every month or so. It may be well to instruct the patient regarding toxic symptoms so that he may discontinue the drug if necessary.

It is not out of place to comment upon the use of vitamin D in the condition in which its massive dosages have been used most frequently in recent years. This is rheumatoid arthritis. Its use here is empiric there being no experimental or satisfactory clinical evidence of its efficacy. Certainly there is danger in beginning such therapy for it is not uncommon to see patients continuing it after leaving the physician's follow-up. (The preparations avail-

able to the laity without prescription actually constitute a danger.) Thus it seems that massive doses of vitamin D should only be used advisedly.

R. H. K.

★

## THE MEDICAL CARE OF VETERANS

A timely editorial by Dr. Harris Schumacker, Professor of Surgery, Indiana University Medical Center, and a veteran himself, has appeared in *Surgery, Gynecology and Obstetrics*.<sup>\*</sup> Timely, because as he points out, another huge mobilization will add additional millions to the load of the Veterans Administration. Though he admits that much must be done to supply adequate medical care to the population as a whole, he questions the wisdom of giving veterans special consideration other than in the case of service-connected disabilities. In such cases, he says, "medical care or services are theirs by right and not . . . beneficent gratuity."

The author of the editorial questions the extensive medical care of nonservice connected disease, emphasizing that the law providing medical care *only for those who cannot afford it* is flouted as a general policy. He points out that this policy is "dishonest," that "it involves . . . our Government in a policy of deceit" which "can only lead to moral deterioration."

In considering the fact that there are now 19,000,000 veterans, to be added to by the further millions to be mobilized, the possibility of extending gratuities to such a mass of the population and its end results "stagger the imagination." He quotes the recent law making service-connected any case of tuberculosis developing within five years of discharge. He points out how a vote-seeker may utilize such tactics.\*\*

\*Editorial. The Medical Care of Veterans, Surg., Gynec. & Obst., 92:621, 1951.

\*\*H.R. 3996 was introduced by Jones of Alabama, May 7. It would amend the Veterans Regulations to provide that malignant tumors developing a 10 per cent or more degree of disability within 5 years after separation from active service shall be presumed to be service-connected.

See also under National News, this issue.



Dr. Schumacker seriously questions the wisdom of building more and more Veterans' Administration Hospitals and staffing them with civilian personnel. He points out that at the present time the excellent medical care is provided by civilian physicians. Surely, he says, the same care would not deteriorate if provided in a civilian hospital. And he asks, "Would patients and the nation not be served as well or better if the medical care of eligible veterans were entrusted to the best of existing civilian hospitals rather than to continue to attempt to build, equip and staff more and more veterans' facilities? . . . its practical implementation would appear to be entirely feasible. . . . Only hospitals meeting the very highest standards need be considered for such collaboration. . . . Civilian (professional) personnel . . . might continue to be recompensed as is customary . . . at the present time. . . . It is difficult to visualize that such a program would result in inferior care or prove more costly than that currently in practice."

Had we but sufficient lawmakers who placed the welfare of the country first and the accumulation of votes second, the cogent reasoning of Dr. Schumacker might be given consideration. Such a plan and the strict enforcement of the law would assure the *eligible* veteran the best medical attention in the nation.

R. H. K.



#### DOCTOR RESPONSIBILITY IN THE HIGH COST OF MEDICAL CARE

It has often been said that the high cost of medical care should not be put on the shoulders of the medical profession only. In many instances this is surely true. The patient who has been operated upon and has had special nurses may well find that the surgeon's fee is modest in contrast to the nurses' remuneration plus the hospital bill.

Nevertheless, we as physicians, collectively, have a part in the overall cost. Much of it is dependent upon our judgment. Do we pause often enough to estimate what the long range results are of unnecessary hospitalization, injudicious use of specialized methods of examination, needless laboratory

examinations and the wanton use of expensive medication? These are to be condemned as is unnecessary surgery. By unwise expenditure of the patient's earnings, especially in the middle class economic group, the physician may easily cause the wage earner to spend ten per cent or more of his annual earnings on a single illness in the family. As he digs into his savings or borrows, with his car or other property as collateral, he becomes easy prey for the politician who promises medical attention "free." The Blue Cross has felt the impact of the conspiracy between doctor and patient, at times, in the use of both needless hospitalization and needless ancillary medical services.

Your editor recognizes the "pressure" the patient exerts in his query, "Aren't you going to give me penicillin or aureomycin for my cold?" It is most unfortunate that the education of the public in things medical has been left in the hands of the writers for the lay magazines extolling the virtues of the "wonder drugs," the antibiotics. If we could but teach patients the truth of Osler's statement, "Believe nothing that you see in the newspapers—they have done more to create dissatisfaction than all other agencies. If you see anything in them that you know is true, begin to doubt it at once."

The patient cannot be a judge. But do we all take the time needed to explain the limitations of the antibiotics for, let us say, that common ailment the common cold! No, we underline the optimistic lay writings by quickly writing a prescription for something which costs a dollar per capsule. Who is in a better position to educate the patient than the doctor who has the patient's confidence? Would such education shake a patient's confidence in the medical profession more than a case which came to your editor's attention! A widow working for a modest wage and supporting two children as well as herself, may have had some cause for complaint when what seemed to have been a common cold in one of her children cost her about forty dollars. To be sure only about twelve dollars went for physician's fees, but the remainder was spent for expensive antibiotics whose use might well

be questioned on scientific grounds. We recently pointed out how adequate, simple tests with a little thought would so classify anemias that serious disease might not be overlooked and in addition would permit of *proper and the best treatment* more cheaply than by expensive "shot-gun" therapy.<sup>1</sup> In almost all instances an anemic person needs on the one hand *only* liver extract or B<sub>12</sub> or, on the other hand, *only* cheap ferrous sulphate without any other substance being necessary.

So too, recent editorials on these pages on the subjects of History Taking and the Physical Examination have had as their objective the accumulation and evaluation of that information which would permit the rational use of special technics in the study of the patient, providing more accurate or pointed study, surely much cheaper to the patient than willy-nilly or haphazard utilization of X-ray and laboratory investigations.

Do we wish to stop the trend toward governmental medicine? In our daily practice we have a means of deflating to some extent the high cost of medical care and thereby cutting some of the ground from under Ewing. It is less expensive and more fun to make a bull's-eye diagnosis by the senses and the intellect than by many expensive random shots from the clinical, X-ray or other laboratory.

R. H. K.

<sup>1</sup>Editorial. Treatment of Anemias, J. Tennessee M. A., 44:75, 1951.

## WHAT'S NEW IN MEDICINE

### Divided Doses of Radioactive Iodine in the Treatment of Tumors of the Thyroid

Crile (Am. J. Roentgenol., 65:415, 1951) suggests that multiple smaller doses of radioactive iodine seem more effective than a massive dose. The I<sup>131</sup> is taken up irregularly, the more active nodules will show a greater concentration of the iodine because of a greater uptake, leaving little or other nodules. Therefore less active areas will be affected by subsequent treatment if

areas of greatest activity have been inactivated. The author thus feels that multiple doses of radioactive iodine control the hyperthyroidism of nodular goiters more satisfactorily than one single massive dose. He suggests divided doses at 6 to 8 week intervals. It appears that papillary carcinomas of the thyroid may take up radioactive iodine irregularly also and thus may be treated more effectively with divided doses of I<sup>131</sup>.

★

### Effect of Intravenous Human Serum Albumin in Hypersensitivity Reactions and Various Arthritic States

The alteration of serum protein in certain disease states is being recognized more and more. Changes in the globulin fraction has been noted in diseases of hypersensitivity and infectious origins.

Merchant, Brown, Robinson and Wickelhausen (presented at the Meeting of the American Society for Clinical Investigation, April 30, 1951) found that serum albumin given intravenously to patients having rheumatoid arthritis produced varying effects from marked improvement to an exacerbation of symptoms. The giving of serum albumin produced a rise of albumin and a depression of globulin fractions very much as found in patients on cortisone therapy. Prompt relief was obtained by giving small amounts of serum albumin in 3 patients having serum sickness and in 7 with penicillin reactions. In a patient having aplastic anemia with severe transfusion reactions, the giving of albumin prevented reactions. In 3 gouty patients refractory to colchicine and unaffected by serum albumin alone, their combination was successful in the control of symptoms.

★

### Significant Remissions in Rheumatic Diseases with High Dosage Cortisone Therapy

Bayles and his associates had found, as had other workers, that standard doses of ACTH and cortisone had failed to establish remissions in these diseases after stopping therapy. In their experience, 90 per



cent of 135 patients so treated had relapsed within 10 days after treatment. However, they found that 9 patients receiving marked physiologic effects on ACTH had prolonged remissions.

These authors therefore treated 12 patients with a high dosage of cortisone. (Reported at the meeting of the American Society for Clinical Investigation, April 30, 1951.) The cases included 7 of rheumatoid arthritis, 1 of rheumatoid spondylitis, 2 of disseminated lupus, and 1 of rheumatic fever with carditis. For 14 to 28 days, 500 mg. of cortisone was given intramuscularly daily. In 2 psychotic episodes and in 1 water retention proved to be untoward by-effects of temporary duration.

The first 5 treated have retained remissions for 74-88 days; 4 have remained in a remission for 13-32 days. They feel high dosage cortisone therapy deserves further study.

★

### Streptokinase and Streptodornase in the Treatment of Diabetic Gangrene

Two enzymes from broth cultures of beta hemolytic streptococci have been described by Tillett. These activate a fibrinolysing system in euglobulin and also liquefy pus and fibrin.<sup>1</sup>

McVay and Sprunt of the University of Tennessee (Arch. Int. Med., 87:551, 1951) have used these enzymes in the treatment of five patients having diabetes mellitus complicated by diabetic gangrene. The agents were used for "medical debridement." The authors point out that surgical attack may be refused, may be impossible because of the patient's condition or may seem contra-indicated because of superficial involvement.

One of their patients who seemed hopeless and refused amputation did remarkably well with the local application of the enzymes. One who had ulcers for 32 years improved sufficiently to permit the surgeons to advise plastic repair. One instance of radiation necrosis (for an epithelioma) in a diabetic healed quickly.

<sup>1</sup>What's New in Medicine, J. Tennessee M. A., 44:161, 1951.

Streptokinase and streptodornase were mixed with aureomycin powder to form a liquid which after local application formed a semipaste thus requiring no surgical dressing.

## DEATHS

**Dr. Roy A. Fisher, Jr.**, young Knoxville physician, passed away April 31, 1951. Dr. Fisher was a loyal member of organized medicine. The Knoxville Academy, commenting on his untimely passing, said: "The local medical society will miss Dr. Fisher. He was a well-trained doctor, and we are sure he would have contributed much to our profession in the years to come." Aged 36.

★

**Dr. M. M. Copenhaver**, Knoxville, died suddenly at his home from a heart attack on May 3, 1951. Dr. Copenhaver was a Past-President of the Knoxville Academy of Medicine and a member of his state and national medical associations. Aged 73.

★

**Dr. John H. McAnerny**, Parsons, was killed accidentally on May 4, 1951. Dr. McAnerny was graduated from the Medical College of the University of Tennessee in 1933.

★

**Dr. Thomas A. Wheat**, Lewisburg, passed away May 9, 1951. The *Lewisburg Gazette*, commenting his death, said in part: "Dr. Wheat was very active in organized medicine in Tennessee. He was a member of the Bedford County Medical Society, and a charter member of the new Public Service Committee of the Tennessee State Medical Association. He made solid contributions to the cause of medicine." Aged 36.

★

**Dr. E. M. Everett**, retired Collierville physician, died April 22, 1951. Dr. Everett,

retiring in 1940, had practiced in the Weakley County area for 52 years. Aged 90 years.

★

**Dr. John E. Nelson**, Chattanooga, died April 6, 1951. Dr. Nelson had retired several years ago after practicing medicine for 51 years. Aged 74.

★

### Jonathan W. Cox

Whereas, the Almighty Father in His Infinite Wisdom deemed it well to take from us our esteemed colleague and fellow physician, Jonathan W. Cox, on March 23, 1951 at the age of 41. We were deeply grieved.

Whereas, he was a graduate of Wayne University and came into our midst in September, 1949 as the director of the Anderson County Health Unit. We had grown to respect and admire his efforts at improvement of the health of his community, let it hereby be said that we shall miss him and continue to mourn his passing.

Whereas, he is a member of the American Medical Association, Tennessee State Medical Association and the Anderson-Campbell Medical Society. We respected him for his efforts in the betterment of public welfare, his keen interest in the medical profession, his untiring effort to improve his medical knowledge and to hasten the better understanding of principles of health and to safeguard against disease in Anderson County; now

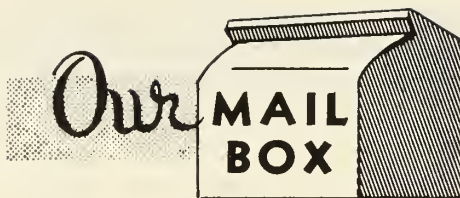
Therefore, be it resolved that the membership of the Anderson-Campbell Medical Society hereby express its deep regret of the loss of this our fellow member and physician and that a copy of these Resolutions be sent to Mrs. Pauline Cox, a copy to the Tennessee State Medical Journal and one filed as a permanent record of our organization.

### FOR THE PRESIDENT AND SOCIETY:

JOSEPH J. BAIRD, M.D., Chairman  
J. M. COX, M.D.

ROSCOE C. PRYSE, M.D.

Committee on Resolutions



From:

The Tulane University of Louisiana  
School of Medicine  
New Orleans, Louisiana  
Dear Dr. Kampmeier:

I would like to extend my sincere congratulations for your editorial entitled "The Physical Examination" which appeared in the April issue of the JOURNAL of the Tennessee State Medical Association. I only hope that every physician will read and reflect upon this editorial.

Sincerely yours,

R. L. PULLEN, M.D.

Director, Division of Graduate Medicine

★

From:

Nashville, Tennessee

Dear Doctor Kampmeier:

A big pat on the back for you on your editorial on Physical Diagnosis and Physical Examination!

It might be a good idea to require every teacher of medicine to read the statement of yours to each of his classes at least once each and every week so that the medical student might be constantly encouraged to use the senses God has given him to the limit of his capacities and then examine the rays, grams, graphs and reports on laboratory tests with the same care given to Inspection, Palpation, Percussion and Auscultation—the "four points."

More power to your pen!

Very truly yours,

OLIN WEST, M.D.

★

From:

American Medical Education Foundation  
535 North Dearborn Street  
Chicago 10, Illinois

Dear Doctor Kampmeier:

I have just seen the March issue of the JOURNAL OF THE TENNESSEE STATE MEDICAL ASSOCIATION and I want to tell you how much I appreciate the prominence that you gave to the story about the American Medical Education Foundation.

This is just the kind of help that we need to get the Foundation better known and to gain the support and contributions of the medical profession.

Sincerely yours,

DONALD G. ANDERSON, M.D.  
Secretary-Treasurer



## PROGRAMS AND NEWS OF MEDICAL SOCIETIES

### Knoxville Academy of Medicine

The Academy held a meeting on May 1, at which time a paper by Dr. E. O. Ballou was heard entitled "Ocular Changes in Orbital Cellulitis." On May 15 G. Turner Howard, M.D., read a paper on "The Adenomatous or Nodular Goiter." On May 29 two guest speakers appeared on the program, Burgess Gordon, M.D., of Philadelphia, who spoke on "The Clinical and Physiological Aspects in the Treatment of Chronic Pulmonary Disease," and Oscar A. Sander, M.D., of Milwaukee, whose subject was "Benign Pneumoconiosis."



### Nashville Academy of Medicine

The Nashville Academy of Medicine and Davidson County Medical Society held its annual Memorial Service on May 1. At the meeting on May 15 the following papers were presented: "Clinical Uses of Vitamin B," J. W. Frazier, M.D.; "Case Report—Pregnancy Complicated by Active Rheumatic Fever with Endocarditis, Treated with ACTH," M. C. Woodfin, M.D.; and "Differential Diagnosis of the Acute Abdomen," by F. T. Overton, M.D.

At a dinner meeting on May 29 the Academy members were guests of Vanderbilt University Hospital. The program consisted of papers by Rollin A. Daniel, M.D. on "The Surgical Treatment of Mitral Stenosis," and by Hugh J. Morgan, M.D., on "The Age Factor in Disease," and presentation of cases by Amos Christie, M.D. and the Pediatric Resident Staff. Dr. Ernest Kelly, President of the Tennessee State Medical Association visited the Nashville Academy of Medicine on this occasion.



### Memphis and Shelby County Society

The Memphis and Shelby County Medical Society heard, at its meeting on April 3 a panel discussion on "The Dizzy Patient" led by Doctors N. W. Guthrie, Frank Harrison and Sam Sanders. At its April 17

meeting the following papers were read:

"Case Report—Spontaneous Rupture of the Esophagus" by Dr. David Dunavant.

"Case Report—Aneurism of the Right Internal Carotid Artery with Interesting Eye Manifestations" by Dr. R. Myers.

"Burn Problem in an Atomic Attack" by Dr. J. Greenfield.

## NATIONAL NEWS

### If Your A.M.A. Journal Is Missing

*This reprint will answer questions which have been posed to the office of the Secretary of the Tennessee State Medical Association.*

(Reprinted from *New York Medicine*, official publication of the Medical Society of the County of New York, March 20, 1951.)

Recently the Executive Office of the Society has received a number of telephone calls from members asking the question, "I haven't been receiving the J.A.M.A. for the last few weeks. I sent in my check for \$25 for A.M.A. dues on such-and-such a date. What has happened?"

Investigation reveals that these calls usually are from members who did not pay their 1950 A.M.A. dues by the deadline date of December 31, 1950, and who have since sent in their checks for 1950 on—say—January 15, 1951.

What has happened is quite simple. When the 1950 dues were not paid by the end of the year the doctor entered the category of delinquent membership in the A.M.A. His name was removed from the roster of members and his name was removed from the list of those who receive the *Journal of the A.M.A.*

Such delinquent members will not be entered on the circulation list of the *Journal of the A.M.A.* until they have been reinstated to full membership. This means they must pay BOTH their 1950 and 1951 dues. If they have now paid their 1950 dues (after January 1, 1951), they must also pay the 1951 dues before they enter status of member in good standing. Until then they will not receive the *Journal*.

Word direct from the A.M.A. is that members who paid their 1950 dues on time (before the end of the year 1950) are in good standing and have until the end of 1951 to pay their 1951 dues. They are considered as "good circulation risks" and will continue to receive the *Journal* during 1951 even if they cannot pay their 1951 A.M.A. dues until later this year.

But members who did not pay their 1950 dues on time are now delinquent. They are not considered good circulation risks and the *Journal* will not be sent to them until they enjoy full reinstatement by paying both 1950 and 1951 dues.

It was explained in the circular which accompanied the bills for A.M.A. dues that both 1950 and 1951 dues must be paid. The penalty for those who did not read this, did not believe it, or did not act upon this advice is the penalty of not receiving the Journal of the A.M.A.

When a member pays his full dues and is reinstated in the A.M.A., his subscription to the Journal will start again. And the reinstated member can write directly to the Office of the J.A.M.A. and ask for back copies that he has missed.

We are informed that the Journal printed a number of extra copies of the early issues of 1951 to cover just this possibility. But the extra supply is limited and there can be no guarantee that the supply will not be exhausted.

To repeat the main point:

A.M.A. members who paid their 1950 dues during 1950 have no need to worry. Their J.A.M.A. will keep coming to them throughout the year. But they must pay their 1951 A.M.A. dues during 1951, quite naturally.

Members who have not paid their 1950 A.M.A. dues until after January 1, 1951, are temporarily not receiving the Journal and this is one of the penalties they pay for being delinquent.

Already a few calls have come from delinquent members who have now paid their 1950 and 1951 A.M.A. dues and cannot understand why they do not immediately receive the A.M.A. Journal the following week after they write out their checks. To these physicians it may be of interest to know something of the process of reinstatement.

For example, thousands of checks from members come to the County Society for payment of A.M.A. dues. After opening the envelopes and sorting out the checks, the proper amounts must be entered upon individual treasurer's cards for the permanent records. Lists of names of members paying dues must be arranged in alphabetical order for the auditors. Each check must be stamped for deposit, and deposit slips filled out and rechecked again. The money for A.M.A. dues thus enters the bank to the account of the County Society.

All these operations, including still others, are simultaneously going on to record the payments for County and State dues which are handled separately.

Following such activity at the level of the county society alphabetized lists of members who have paid their A.M.A. dues are sent to the Medical Society of the State of New York together with a check to cover payment of such dues. The State Society, in its turn, must enter the information on its cards, prepare audit lists, make deposits and maintain its own set of records.

Next the State Society sends to the A.M.A. lists of members who have paid their A.M.A. dues and sends covering checks for each such list.

In its turn the A.M.A. must enter all information on its own cards and—along the way—notifies the A.M.A. Journal that member X, for example, is now in good standing. If member X's name has been removed from the mailing list of the J.A.M.A.

because he was delinquent, a new addressograph plate must be prepared with his name and address so that labels can be printed to mail his magazine. Since these labels are prepared an issue or two ahead of mailing it thus takes several weeks to start the machinery flowing again at the Journal office.

All these steps—at the county level, at the state level, and at the national level—provide an explanation of why it is impossible to expect that as soon as a check is mailed to the N. Y. County Medical Society the Journal of the A.M.A. will arrive the next week.



### Veterans Administration Affairs

Chairman Thomas of House Appropriations Committee criticized Administrator Carl R. Gray, Jr. for paying \$605,000 for a 14 month survey of VA operations to the firm of Booz, Allen and Hamilton. This had been authorized by the President. Thomas said, "I hope in the future you will not spend \$600,000 like that, but that you will at least do the committee the courtesy of telling us how you are going to spend the money."

The House Appropriations Committee also observed that there is a waste of trained medical personnel in administrative positions. It also criticized the VA of personnel waste in the staffing of hospitals months in advance of their opening, charging a waste of \$500,000.

VA officials estimate about 113,360 beds will be in operation on July 1, as against 106,287 a year ago. By a year from now they will probably total 127,640. There will be 174 hospitals by the end of 1952 against the 148 today. It is also estimated an additional 1,100 full and part-time doctors will be needed to staff this increase in beds.

Of the hospitalized veterans at the end of March, 64,544 among the 98,421 in VA hospitals were non-service-connected cases.

At present there are ten bills before Congress which would extend the time after discharge in which disabling disease becomes service connected. Roosevelt issued an executive order, Veterans Regulation No. 1, in 1933 in which for the *purpose of pensions, hospitalization and medical benefits*, chronic diseases disabling to a degree of 10 per cent or more within a year from discharge are to be considered service con-



nected. Public Law 748 (80th Congress, June 1948) listing the following chronic diseases presumed to be service-connected under this definition:

anemia, primary	epilepsies
arteriosclerosis	leukemia, nephritis
arthritis, bronchiectasis	Hodgkin's disease
calculi of the kidney,	osteitis, deformans
bladder or gall bladder	osteomalacia
cardiovascular-renal	organic diseases of the
disease, including hy-	nervous system, includ-
pertension, myocar-	ing tumors of the
ditis, Buerger's dis-	brain, cord, or periph-
ease and Raynaud's	eral nerves
disease	encephalitis lethargica
cirrhosis of the liver	residuals
coccidiomycosis	scleroderma
diabetes, mellitus	tuberculosis, active
endocarditis	tumors, malignant
endocrinopathies	ulcers, peptic (gastric or
	duodenal)

And such other chronic diseases as the Administrator of Veterans' Affairs may add to this list, plus an additional 15 tropical diseases.

The 81st Congress raised the limit on tuberculosis as service-connected to within 3 years of discharge from service.

The 10 bills before the present Congress deal severally with extending the limits of service connection from 1 year to 3, 5, and 7 years for certain of the diseases, as tuberculosis, psychosis, leukemia, malignancies, Hodgkin's disease and diseases of the central nervous system.

## MEDICAL NEWS IN TENNESSEE

### Postgraduate Study

The eighth circuit in Psychiatry, As Applied to the Practice of Medicine closed the week of May 21 in the centers of Nashville, Clarksville, Springfield, Dickson, and Gallatin, with a total enrollment of 104. The next, and last, circuit Number IX, opens in the following centers with the scheduled hours and dates listed, which will enable any physician in adjacent territories to make up any missing lectures. The Committee has been urged to quote these schedules at the opening of the circuit for this purpose. The Committee has always been glad to have any doctors make up missing lectures or repeat any or all lectures in nearby centers.

### Circuit IX

RALPH P. TOWNSEND, M.D., *Instructor*  
Memphis, Tenn., May 16, 1951  
Carthage, Monday, May 28, 7 P.M., Carthage High School.  
Cookeville, Tuesday, May 29, 7 P.M., Basement, Cookeville General Hospital.  
Crossville, Wednesday, May 30, 8 P.M., Cumberland Medical Center.  
Harriman, Thursday, May 31, \*7:30 P.M., Harriman High School.  
Oak Ridge, Friday, June 1, \*12:30 P.M., Oak Ridge Hospital.

\*Note: Eastern Daylight Time.

★

The Middle Tennessee Medical Association held its 113th Semi-Annual Meeting at Cookeville on May 17, under the presidency of Dr. R. M. Finks. The following program was presented.

"Headache Due to Diseases of the Temporal Vessels" by Dr. L. A. Grossman, Nashville

"Advances in the Treatment of Burns" by Dr. B. Douglas, Nashville

"Present Trends in Medical Research" by Dr. R. A. Light, Nashville

"Treatment of Convulsive Disorders" by Dr. C. A. Cobb, Nashville

"Chemotherapy in Treatment of Tuberculosis" by Dr. H. Johnson, Nashville

"Early Diagnosis and Management of Carcinoma of the Buccal Cavity" by Dr. L. Rosenfeld, Nashville

"Some Aspects of Treatment of Urinary Tract Infections" by Dr. F. Moore, Nashville

"Cardiac Arrhythmias and Their Treatment" by Dr. C. W. Adams, Nashville

Dr. W. N. Cook of Columbia took office as President at this meeting.

Other officers elected were: President—Dr. J. T. Boykin, Murfreesboro; Secretary-Treasurer—Dr. B. F. Byrd, Jr., Nashville, re-elected; Trustee for 3 year period—Dr. E. B. Clark, Sparta.

★

The Nashville Society for Internal Medicine held a dinner meeting on May 22. It was addressed by Dr. Robert S. McCleery

on the subject of "Some Concepts of the Spleen and its Relationship to the Bone Marrow and Adrenal Gland." The following officers were elected:

Dr. Owsley Manier—President

Dr. Jack Witherspoon—Vice-President

Dr. Thomas Frist, re-elected as Secretary-Treasurer.

★

Doctors R. R. Overman and D. B. Zilversmit of the Department of Physiology, University of Tennessee School of Medicine have been granted \$6,500 and \$5,500 respectively by the American Cancer Society. Dr. Overman's grant is for the investigation of the role played by potassium and sodium in both the normal and cancerous cells of the body, in the hope that an early diagnosis of cancer may be made on the basis of the altered chemical content of the cells.

Dr. Zilversmit will study the role of the liver in the utilization of fats by the body.

★

Dr. D. B. Morrison, Associate professor of chemistry of the University of Tennessee Medical Units will become the director of the Section of Clinical Chemistry to be established by the U. T. College of Medicine this summer.

The section is being established to enlarge both the teaching program of the College and the chemical diagnostic services to patients at John Gaston Hospital. The section will be located on the second floor of the old Pathology Building which will be remodeled as soon as the Division of Pathology and Bacteriology moves into the new Institute of Pathology on about July 1.

★

The Anatomy Building at the University of Tennessee Medical Units will be named for Dr. August Wittenborg, who was an instructor in physiology in the old College of Physicians and Surgeons. Later in the University of Tennessee College of Medicine he became the head of the Department of Anatomy and still later chief of the Division of Anatomy. Dr. Wittenborg served

as dean of the College of Medicine from 1917 to 1919. He died in Ann Arbor, Michigan August 21, 1941. Formal dedicatory services will be held during the June Commencement.

★

The West Tennessee Medical and Surgical Association held its annual meeting on May 24, 1951 at Union City under the presidency of Dr. Charles F. Webb of Jackson. The following papers were presented:

"Symposium on Obstetrics" by Frank Whitacre, M.D. of Memphis

"Amebiasis" by Ernest P. Guy, M.D. of Henderson

"Neuritis in Upper Extremities, Its Cause and Treatment" by Bland Cannon, M.D. of Memphis

"The Irritated Bladder of the Female" by Charles Stauffer, M.D. of Jackson

"The Problems of the General Practitioner" by Roy Douglass, M.D. of Huntingdon

"Lumbar Sympathectomy" by George D. Dodson, M.D. of Jackson

"Differential Diagnosis in Abdominal Pain in Children" by David W. Stewart, M.D. of Brownsville

"Case Report: Acute Jejunitis with Perforation" by Byron O. Garner, M.D., Union City.

At the banquet a paper was read on the subject of "Benign Surgical Lesion of Female Pelvis" by Dr. Conrad Collins, Professor of Gynecology, Tulane University of New Orleans.

New officers elected were:

President—Dr. F. Douglass, Dyer

1st Vice-President—Dr. Marvin A. Glanton, Jr., Union City

2nd Vice-President—Dr. B. F. McNulty, Bolivar

Secretary and Treasurer—Dr. Leland M. Johnston, Jackson.

## PERSONAL NEWS

The President of the United States of America, authorized by Act of Congress July 20, 1942, has awarded the Legion of Merit to



**Colonel Robert C. Robertson, USA**

for exceptionally meritorious conduct in the performance of outstanding services.

"Colonel Robert C. Robertson (then Lieutenant Colonel), Medical Corps, performed exceptionally meritorious service as Orthopedic Consultant, Office of the Chief Surgeon, United States Army Forces, Pacific Ocean Area, from March, 1942, to September, 1945. He greatly assisted in the formulation of policies and the selection, training, and supervision of personnel in connection with the treatment of orthopedic casualties in the theater. Colonel Robertson carried on his mission of supervision and training within the combat area hospitals and down through the chain of evacuation, to the battalion aid stations of the United States Army Forces engaged in Saipan, Guam, Leyte, and Okinawa. Through his outstanding professional skill, leadership, understanding, and tact, Colonel Robertson made a material contribution to the mission of the Medical Department in the Pacific Ocean Area."

★

**Dr. W. R. West**, Knoxville, retired city physician and "silver-tongued orator," celebrated his ninetieth birthday last month.

★

**Dr. P. W. Wilson**, Dresden, was recently elected president of the Dresden Rotary Club. Dr. Wilson also plans construction of a new clinic in Dresden.

★

**Dr. John T. Mason**, McMinnville, is the new chairman of the Warren County Board of Health.

★

**Dr. Jean S. Felton**, Oak Ridge, Chairman of our Committee on Industrial Health, was named chairman of the Board of Trustees of the Oak Ridge Unitarian Church.

★

**Dr. Herbert Acuff**, Knoxville, was the speaker for the Alumni Banquet at Carson-Newman College last month. Dr. Acuff took his pre-med work at Carson-Newman.

**Dr. Olan E. Ballou**, Knoxville, was the principal speaker at Alpha Epsilon Delta's annual spring banquet in Knoxville last month.

★

**Dr. J. T. Moore**, Algood, the Association's "Outstanding General Practitioner of the Year," has returned from Rochester where he attended meetings at the Mayo Clinic and three days of the Annual Meeting of the Minnesota State Medical Association.

★

**Dr. Ernest Kelly**, Memphis, was the guest of honor at the Nashville Academy's Meeting on May 29. President Kelly hopes to visit as many local societies as possible during his administration.

★

**Dr. Edward T. Newell, Jr.**, of Chattanooga is the new President of the Association of Surgeons of the Southern Railway System. **Dr. J. Marsh Frere, Sr.**, of Chattanooga is the recording secretary of the Association.

Both men were elected at the fiftieth annual meeting in Atlanta. Dr. Newell is the youngest surgeon to be honored with presidency of the organization. There are 600 members.

★

**Dr. Hal Henard** of Greeneville has been voted an honorary Doctor of Science degree by the Tusculum College Trustees. The presentation was scheduled for June 4.

★

**Dr. H. D. Bruner** of Oak Ridge has been elected Chairman of the Southeastern Section of the Society for Experimental Biology and Medicine. He is chief scientist with the Oak Ridge Institute of Nuclear Studies.

★

**Dr. Hugh J. Morgan** of Nashville filled the chair as President at the meeting of the Association of American Physicians at its sixty-fourth annual session at Atlantic City, May 1 and 2. A dinner in his honor was given by former residents and associates on the Medical Service of Vanderbilt University Hospital on April 28, at Hotel Haddon-Hall.

## WOMAN'S AUXILIARY

[Editor's Note: Because of space limitations, we were unable to publish the following address in the May issue. We take pleasure in publishing Mrs. Niceley's address in full which was delivered before the House of Delegates at the One Hundred Sixteenth Annual Meeting.—V. O. F.]

It is indeed a privilege and a pleasure to bring to the House of Delegates of the Tennessee State Medical Association the report of the Woman's Auxiliary. I am not unmindful that this is the first time a President has had this honor of presenting her annual report. I am very happy to give this report of the Auxiliary.

Our membership for the year is 813, an increase of 55 members. We have 40 counties organized into nine Auxiliaries. There are 22 members-at-large—an increase of four over last year. They are scattered among 16 counties. Thus making a total of 56 counties with some kind of organization in them.

In West Tennessee there are the Shelby County and the West Tennessee Consolidated Auxiliaries. This second one is composed of 14 counties. Middle Tennessee has Davidson County Auxiliary and the newly organized Five County Medical Auxiliary. Eight counties make up this new one.

Another new Auxiliary this year is the Greene County Medical Auxiliary. This has only been organized since February 1st. East Tennessee also has four others—Blount County Auxiliary, Hamilton County Auxiliary, Washington, Carter, Unicoi (or called the Tri-County), and last, our Auxiliary to the Knoxville Academy of Medicine.

The Auxiliary's prime concern is that every doctor's wife be an informed doctor's wife—informed on medical legislation, local health problems, and to be aware of the position she has as a doctor's wife in her community, school, church, bridge club, etc. It is in each and any of these activities that she is your "Public Relations."

In one Auxiliary 22 active members are on health committees of other organizations, and we know in these groups proper health

programs and projects have been presented. Speakers bureaus are active in most of our Auxiliaries, and they provide doctors and Auxiliary members as speakers to lay organizations.

The program and projects of the Woman's Auxiliary for this past year have been rather flexible, due to the change in the national scene. With soldiers on foreign soil once again, the doctors' wives have met locally the calls that have come to them from the Red Cross, civilian defense, nurse recruitment, and others. The Johnson City wives were the recipients recently of much praise after staffing the Red Cross blood mobile bank.

Each Auxiliary has had its own set of projects, in addition, cooperation with the special projects undertaken on a state-wide basis. In the Auxiliaries they have endeavored to be informed on legislation and public relations as it concerns you. The Nashville Academy of Medicine arranged a meeting for the doctors and their wives, with the program planned to present legislation and the role the doctor's wife plays in medical public relations. This proved to be a very successful plan, resulting in more knowledge and better fellowship.

Uppermost in the minds of the Auxiliaries is one main objective—the development of sound public opinion and good will through cooperation with other organizations. Thus most of the Auxiliaries have had "Public Relations Day," "Community Day," and similarly called programs, to which have been invited the representatives of civic and women's organizations. These have proved to be most effective, resulting in resolutions, clearer understanding of medical legislation, and a better feeling of cooperation among all concerned.

Many of the Auxiliaries have endeavored to be of service in the local general hospitals. Hamilton County has provided 65 bedspreads and made dresser scarves for the nurses home. The Nashville ladies have rolled numerous bandages, made gowns, distributed books and magazines to ward patients. The Blount County Auxiliary has been of a real service to their newly completed Blount Memorial Hospital. With



more small hospitals being constructed throughout the state, more and more the doctors' wives will be needed for service.

Another avenue of approach to help the hospital situation in the shortage of nurses, several of the Auxiliaries have provided scholarship loans and nurse scholarship funds to train girls for the nursing profession. Another has used its benevolent funds to provide assistance to a deserving medical student.

The Shelby County's booth at the Mid-South Fair was successfully serviced for ten days, twelve hours a day, by the ladies of the Auxiliary. A like service was performed by the Knoxville ladies with the Knoxville Academy of Medicine booth at the annual East Tennessee Educational Association meeting at the University of Tennessee. Countless hundreds of pieces of literature were distributed to the teaching public.

P.T.A., A.A.U.W., and nurses study kits have been carefully placed throughout the state into the hands of members of these key organizations. Whether we are in accord with or support these groups, we seek to reach them. The Putnam County members obtained from their local County P.T.A. Council a written statement against Socialized Medicine. That is the only statement received this year from a P.T.A. group in our state.

*Today's Health* subscriptions totaled 531, an increase of 168; 72 student group subscriptions were received. West Tennessee Consolidated led in the highest number of subscriptions. Blount County Auxiliary won two national prizes—a set of 18 records as a National Award for Student Planned Subscriptions, and \$25.00, second prize in 19-35 membership groups.

The state Essay Contest, in my opinion, and I feel I share this opinion with many others, has been the outstanding project we have participated in, along with the Tennessee State Medical Association.

Using as a general theme "Selling America to Americans," the specific title selected was "The Individual—The Pillar of American Freedom." The essay rules were sent to 484 high schools last October.

All sections of the state were represented. In many cases, the local medical societies awarded local prizes for the first three winners.

The response has been splendid. In one Knox County school 200 students entered the contest. Knoxville and Loudon Counties had 400 participants. I could go on into details, but I am sure Dr. C. B. Roberts, your Chairman, will give a much better detailed report.

Not having a publication of our own, the Medical Association has offered us space in their *JOURNAL* for announcements and publicity. We do thank Dr. Kampmeier and Mr. V. O. Foster.

The Auxiliary has received exceptional cooperation from the Tennessee State Medical Association, Dr. Monger, and the other officers. Mr. Bridges, the Public Service Director, has been invaluable to the President and the various Auxiliaries.

And may I say in closing that the spirit of fellowship and mutual understanding among physicians' families are manifested at all times. You know we have indeed an exclusive Auxiliary, for each of you have selected the ones qualified for our membership.

MRS. J. PARK NICELEY, *President,*  
*Woman's Auxiliary to the T.S.M.A.*

## BOOK REVIEW

### **Manual for Physicians' Office Assistants, Memphis, 1951**

A handbook to fill a definite need—just off the press—is the product of three Memphis physicians and a woman pathologist.

The authors are Dr. Henry B. Gotten, Associate Professor of Medicine; Dr. Douglas H. Sprunt, Professor of Pathology; Dr. L. W. Diggs, Professor of Medicine; and Merle Rickey, Instructor in Pathology and Bacteriology—all on the staff of the University of Tennessee Medical School.

Called a "Manual for Physicians' Office Assistants," the handbook is designed to assist the workers in offices of both physicians and dentists. It contains numerous graphic illustrations and charts.

The section for office work was written by Dr. Gotten, and the section for laboratory work by the other three authors.

Besides its obvious value in technical work for professional aides, the manual also offers excellent media for improving public relations by the proper, tactful handling of patients and their relatives in the waiting room, in the treatment room, and by telephone.

(120 pages; \$2.25; on order Dr. Gotten's office, 1412 Madison Avenue, Memphis 4, Tennessee.)

## ANNOUNCEMENTS

The Chamberlain Memorial Hospital, Rockwood, announces that the hospital has openings for an anaesthetist and a laboratory technician who can do blood work and X-ray. Working conditions are attractive. Salaries on both jobs are open. Address inquiries to LeRoy B. Stansell, Rockwood, Tenn.

★

The University of Tennessee College of Medicine will increase its enrollment from 140 new students to 200 per year. The expanded enrollment will start with the fall

quarter beginning in September. U.T.'s Medical College will thus become the largest medical school in the United States.

★

The Arthritis and Rheumatism Foundation is offering research fellowships in the basic sciences related to arthritis. Fellowships will be granted at both the predoctoral and postdoctoral levels. The predoctoral fellowships will range between \$1,500 and \$3,000 per annum, and the postdoctoral from \$3,000 to \$6,000. The deadline for these applications is November 15, 1951. Application forms may be obtained by writing the Medical Director, Arthritis and Rheumatism Foundation, 535 Fifth Avenue, New York 17, N. Y.

★

### Coming Medical Meetings

Upper Cumberland Medical Society, Red Boiling Springs, June 26-27.

American College of Surgeons, Fairmont Hotel, Headquarters, San Francisco, November 5-9.

Michael Reese Hospital Postgraduate Courses: "Diseases of the Endocrines," July 9-21; "Hematologic Diagnosis," July 23-August 4. Address inquiries to Dr. Samuel Soskin, Dean, Twenty-Ninth Street and Ellis Avenue, Chicago 16.



### New 2-Way Aid in ACNE

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RESEARCH IN THE SERVICE OF MEDICINE **SEARLE**

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## Symposium on ACTH and Cortisone

*The use of the adrenal hormone, Cortisone, and ACTH, the adrenocorticotrophic hormone of the pituitary, has become so widespread in practice and has been so widely publicized in the lay press that the symposium on the subject is most timely. The temporary effectiveness of these substances in chronic disease and the untoward by-effects are brought out in a concise manner.*

### INTRODUCTION\*

CHARLES J. DEERE, Ph.D., M.D.,† Memphis, Tenn.

We should join with the Nobel Prize Committee in tribute to Drs. Kendall and Hench for their most interesting and important discovery. We should recall, however, that Dr. Hench<sup>1</sup> stated in 1950 that "... cortisone and ACTH are being used . . . , not as established forms of treatment, but as useful new tools for clinical investigation of a group of diseases which has heretofore been peculiarly resistant to inquiry." The first publication from the Mayo Clinic<sup>2</sup> concerning rheumatoid arthritis stated in part that "when administration of the hormone was discontinued, the disease generally relapsed promptly." The public does not see in print these honest appraisals of the current status, and the same is unfortunately true of a portion of our profession. Response of the public and the profession to a new remedy, particularly an expensive one in short supply, offers an interesting study in social psychology. We hope to summarize the current status of these therapeutic agents. Our impressions are based on a moderate amount of personal experience which is in keeping with the reports of others.

Several factors may influence the choice of these potent agents. Dogmatic statements concerning the superiority of one of these drugs can be made in few conditions.

The pharmacologic action of ACTH is stimulation of the adrenal to produce cortisone or related steroids. It makes little difference whether the cortisone is of exogenous or endogenous origin. ACTH therapy leads to more sodium and water retention<sup>3</sup> through its contamination with pituitary antidiuretic principle or through its stimulation of the adrenal to produce salt-retaining hormone. Cortisone may therefore be preferable to ACTH therapy in the presence of hypertension or myocardial failure.

Cortisone has been used locally to advantage in certain diseases of the eye. Superiority of ACTH in nephrosis, gout and bronchial asthma has been suggested. We have obtained striking benefit of a temporary nature by the use of cortisone in each of these conditions. Cortisone will be favored for convenience in the number of injections, at least until a satisfactory long-acting ACTH is available. Oral cortisone is even more convenient, but a comparable effect to the injected form requires a somewhat larger oral dose and is therefore more expensive. Unit cost and differences in dosage make effective cortisone therapy approximately one-half the cost of ACTH therapy.

According to Thorn and co-workers,<sup>3</sup> the period of relative adrenal insufficiency at the end of therapy is shorter and less pronounced after ACTH therapy. This period of suppression of the patient's own pitui-

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the depression of the anterior pituitary with its many functions along with the hypertrophy of the adrenal cortex, which results from the administration of ACTH. Fortunately, it appears from animal studies, but unproven in humans, that these effects are reversible. It will take more experience over a longer period of time before the true effects and safety, as well as therapeutic value of these agents can be accurately ascertained. It is our opinion that these agents have been released somewhat early and that the clinician must guard against their indiscriminate use. A greater challenge faces the medical profession for the conservative use of these agents than that associated with the introduction of the sulfonamides and antibiotic agents.

In our experience these hormones have offered a means of substitution therapy comparable to insulin in diabetes in rare instances, and in the majority of conditions only are temporary in their benefits.

#### Dosage

The dosage of ACTH in children has ranged from 10 mg. to 100 mg. daily, usually given at 6 hour intervals for 7 to 10 days. The smaller single dosages at daily or at less frequent intervals have been continued for months by some with no apparent deleterious effects. At the present time the trend is toward the smaller dosage schedule, especially since this product has been more highly purified.

The dosage of cortisone should be determined by the severity of the disease and not by the age and weight of the child. The daily dose usually does not exceed 100 mg. but there are instances, such as severe rheumatic fever, when the patient probably should receive 200 or even 300 mg. daily during the initial days of therapy. Doses of 25 mg. daily or at less frequent intervals have been continued for months.

ACTH should be administered by the intramuscular route whereas, cortisone is apparently equally effective by the oral or intramuscular routes.

It is to be emphasized that the dose of either of these agents should be reduced gradually before withdrawing the drug in order to prevent a state of hypoadrenalism

or hypopituitarism which results from abrupt withdrawal.

#### Diagnostic Criteria and Tests

The diagnostic criteria and tests for malfunction of the adrenal glands as well as the tests for therapeutic response and for adverse effects associated with the use of cortisone and ACTH, include eosinophil counts, uric acid and creatinine excretion, 17-ketosteroid excretion, blood glucose and NPN determinations, urinalysis and electrolyte studies, as well as observations for hypertension, hypertrichosis, moon face, and psychic changes.

#### Experiences

The following conditions to which the remainder of my discussion will be limited have been treated by the Pediatric Staff of John Gaston Hospital with ACTH and cortisone made available by the College of Medicine of the University of Tennessee.

1. *Acute rheumatic fever*, initial and recurrent attacks. (5 cases)
2. *Rheumatoid arthritis*. (2 cases)
3. *Nephrotic syndrome*. (4 cases)
4. *Leukemia*. (3 cases)
5. *Eczema*. (5 cases)
6. *Scleroderma*. (1 case)
7. *Psoriasis*. (1 case)

This list obviously does not include all conditions which have been reported to be influenced by these agents and does not include Addison's disease for which cortisone is specific. Also, I am not prepared to discuss their use in such conditions as prolonged diarrhea, prematurity and other conditions under investigation in various parts of our country.

#### Acute Rheumatic Fever

Five patients with acute rheumatic fever, between the ages of 6-11 years, have been treated with cortisone. The dosages ranged from 100-300 mg. per day during the first 1-3 days followed by daily doses of 50-100 mg. depending upon the severity of the symptoms. In four patients the history and findings indicated this to be their primary attack. Three of these cases showed no carditis as shown by the absence of cardiac murmurs, by normal roentgenographic ap-

pearances of the heart and by normal electrocardiograms. These patients had fever, tachycardia, migratory polyarthritides, an increased sedimentation rate, a moderate leucocytosis and a mild anemia. Two cases were similar to the above, but in addition had the findings of a severe carditis indicated by cardiac enlargement, a partial or complete heart block, cardiac murmurs, and dyspnea. One patient with a history of repeated recurrences had physical and EKG findings indicative of severe cardiac involvement.

In the three early cases without carditis there was a prompt decrease in the fever, arthralgia and anorexia with a definite feeling of well-being. The sedimentation rate returned to normal in from 1 to 9 days. One of these patients experienced a recurrence 1 month following treatment. This patient responded promptly to a second course of cortisone therapy; however, a second recurrence occurred 30 days later which has responded to bed rest and salicylate. The remaining two mild cases have shown no recurrences during 3 months of observation following treatment.

Two patients with carditis showed an initial feeling of well-being. However, there was progressive cardiac involvement, and death occurred rather suddenly either during or within a few days after discontinuing therapy. Autopsy in one of these cases revealed a severe pancarditis.

Our observations in this small and poorly controlled series were not unlike those reported in a review article by Rosenblum<sup>1</sup> and Massell et al<sup>2</sup> in that the early and mild cases with minimal cardiac involvement received the greatest apparent benefit.

We have not used ACTH in the treatment of rheumatic fever and are inclined to agree with Thorn et al<sup>3</sup> that cortisone is less likely to result in sodium and water retention and therefore is the drug of choice.

We have not treated any patients with Sydenham's chorea, however, it might be mentioned that Aronson<sup>4</sup> recently could attribute no benefit to the use of cortisone in the treatment of this condition.

Before leaving rheumatic fever, it should be emphasized that the need for complete rest during and after therapy with these

agents remains an essential part of the treatment; indeed the euphoria associated with cortisone therapy rendered it difficult for us to keep these patients in bed at times and may have contributed, in part, to the fatality in one patient having carditis.

### Rheumatoid Arthritis

Two patients with rheumatoid arthritis have been treated. However, only one will be summarized at this time because Dr. Tatum will devote much of his allotted time to this condition in adults.

H. J., a 2-year-old colored male was admitted to the John Gaston Hospital in April 1950 with fever and swelling of wrists and ankles for at least one month's duration. The temperature reached 105 and 106 degrees daily. There were atrophy of the soft tissues, swollen hot joints with contractures and a stiff back. The pulse was rapid, no murmur was present and there was hyperpnea at the time of admission. Bronchopneumonia was discovered at this time and responded roentgenographically to 6 days of antibiotic therapy; however, the temperature continued unchanged. A dislocation of the left hip was discovered and sterile pus was aspirated from this joint. A leucocytosis with a shift to the left anemia and an increased sedimentation rate were noted. The histoplasmin, tuberculin, agglutination tests for rarer causes of fever, as well as repeated blood cultures were all negative.

After 15 weeks of a continuous fever spiking up to 106° daily and with a gradual, possibly downhill course, cortisone was started in doses of 50 mg. b.i.d. and later reduced to 25 mg. b.i.d. This was followed by a dramatic response. Within 24 hours the temperature, pulse and respiratory rate had returned to normal and the sedimentation rate decreased from 52 to 42 mm. per hour. The child's appetite improved, slight motion returned to the hands and shoulder joints, and there occurred a marked improvement in the mental status.

Immediately after discontinuing therapy all physical and laboratory abnormalities and symptoms returned. Several weeks later a trial of ACTH was somewhat less successful. A second course of cortisone therapy 3 months ago resulted in a marked improvement and the patient was maintained on 25 mg. of cortisone daily for 6 weeks. During a two month period with no therapy the remission has continued with progressive clinical improvement.

This case represents the most dramatic response of all the patients which we have had the opportunity to treat with cortisone or ACTH and at the present time is afebrile, gaining weight, has no anemia and is getting about in Taylor-Tot with a gradual increase in the range of motion in the joints.



### Nephrotic Syndrome

Four patients with a nephrotic syndrome aged 21 months to 7 years, whose duration of illness ranged from 6 months to 3 years have been treated with these agents.

Two of these children, C.W., age 21 months, and W.J., age 7 years, revealed the typical findings of the nephrotic syndrome, i.e., pallor, edema, proteinuria, absence of hematuria, normotension, hypoproteinemia with a reversal of the A/G ratio, hypercholesterolemia and scanty urinary output. J.H. and P.P. represent similar cases, except for the presence of a few RBC and a more liberal excretion of urine.

ACTH was given in doses from 50 to 100 mg. daily for a 10 day period and was then gradually withdrawn over a 4 day period. During the administration of the ACTH all patients became more edematous and in J.H. occasional glycosuria and slight but temporary rises in blood pressure were observed. In the two younger children, C.W. and J.H., age 2 years, the urine had returned to normal at the end of the therapy period. All of the children began to show diuresis in a period varying from the 10th day of ACTH administration to the 11th day after cessation of treatment. The most remarkable weight loss occurred in the two younger patients with an 18 lb. loss for C.W. and 15 lb. loss for J.H. The two older children lost approximately 10 lb. in weight and continued to show a moderate albuminuria during and following diuresis.

The beneficial effects from a single course of ACTH were of a temporary nature in all cases and lasted from 2 weeks to 2 months with a return of all physical and urinary abnormalities. In one patient, J.H., diuresis was accomplished on three different occasions with ACTH and on one occasion we were able to maintain an apparently normal state for 4 months with 25 mg. of cortisone at intervals of from 1 to 4 days. Maintenance of this patient with 10 to 20 mg. of ACTH after preliminary diuresis with this agent has more recently been unsuccessful. Approximately 2 months after discontinuing the maintenance administration of cortisone this patient again became edematous, and had spontaneous diuresis. This has been followed by a continuous al-

buminuria and at the present time this patient is again edematous and has required a paracentesis within the past two weeks.

During the periods of favorable response the appetite improved, the blood proteins returned toward normal, and the blood cholesterol and sedimentation rate decreased in all the patients. The plasma and erythrocyte sodium, potassium and chlorides showed no significant variations.

These findings are not unlike those reported by Barnett et al<sup>5</sup> and Riley<sup>6</sup>. There are reports in the literature of more prolonged beneficial responses following ACTH than observed by us. For the most part the responses have been of a temporary nature and the diuresis has been successfully repeated in the same patient.

ACTH is regarded as the drug of choice in bringing about the diuresis; however, in our limited experience, cortisone was more effective in maintaining the patient edema-free.

Without making any bold claims for these agents from a therapeutic viewpoint, it should be mentioned that their use has demonstrated that the pathological picture can be reversed, thereby making it possible to use them as tools for further study of the pathological physiology of this condition. According to Barnett et al<sup>5</sup> there is a marked increase in the glomerular filtration rate during diuresis which remains somewhat elevated after the reaccumulation of edema.

### Acute Leukemia

Two patients with acute leukemia confirmed by bone marrow studies, R.C., a white male age 18 months and K.D., a white female age 16 months with white cell counts of 27,500 and 99,000 per cu. mm. respectively and a typical differential count with an absence of platelets, were treated with 100 mg. and 50 mg. of cortisone for 8 and 10 days respectively.

The counts began to drop during therapy and later fell to 11,000 per cu. mm. in K.D. and below 6,000 per cu. mm. in R.C. The lymphadenopathy and splenomegaly decreased during therapy and a general feeling of well-being followed with a drop in temperature and an increase in appetite.

However, the hemorrhagic phenomena remained unchanged in both cases and the platelet counts remained low during therapy.

R.C. after 8 days of therapy with extensive hemorrhages was discharged from the hospital at the request of the parents and made a rather spectacular response during the few weeks following therapy, but succumbed approximately 3 months later. K.D. made poor progress following the cessation of therapy and succumbed to the disease a few weeks after therapy.

One child, R.B., age 4, with aleukemic lymphatic leukemia confirmed by bone marrow studies, who appeared to be in the terminal hemorrhagic stage of the disease, has made a spectacular response physically and hematologically to 100 mg. of cortisone I.M. daily for 10 days followed by 50 mg. I.M. daily for 2 weeks. When placed on 25 to 50 mg. per day orally, for 4 additional weeks the blood picture gradually reverted to a leukemic one; the platelet count, however, remained within normal limits. Petechial and ecchymotic areas appeared on the skin, and arthralgia returned. Twenty-one days ago, the cortisone was increased in 100 mg. intramuscularly daily and there has been a moderate improvement in the physical well-being; however, the hematologic picture has changed very little and a blood transfusion was required two weeks ago.

Similar poor and temporarily good responses have been reported by Schulman<sup>7</sup> and Spies<sup>8</sup> and others, and in general it has been observed that if this agent is effective a refractory period is reached sooner or later with the patient having experienced a relatively enjoyable existence.

#### Infantile Eczema

Three infants from 1 month to 1 year of age with severe exudative infantile eczema which developed soon after birth have been treated with cortisone and/or ACTH for 10 to 20 days. All of these patients definitely improved while under therapy with the skin approaching normal in two instances. This marked benefit persisted only while under therapy and for approximately 10 days thereafter. How-

ever, two of these infants continued to remain partially improved when compared with the pre-treatment period and have progressively improved during a nine month period following therapy. In view of the slow but steady progress since therapy, we feel that the use of these hormones resulted in a period during which the skin approached normal and thereby may have permitted natural bodily processes to more rapidly overcome the condition. However, one should not overlook the self-limiting character of this disease.

Three children with mild to severe atopic dermatitis from 2 to 5 years of age were treated with cortisone and received temporary improvement which lasted 3 weeks to 3 months. However, two of these patients have been readmitted on several occasions during the 6-8 months following cortisone therapy for hospital care because of severe recurrences of the condition.

Kanee, et al<sup>9</sup>, using ACTH have reported complete recovery of at least eight weeks duration, the time of their report, in a 14 month old infant who suffered from generalized eczema since the age of 3 months. The response was complete in 24 hours after beginning treatment.

For the most part, it can be stated that the beneficial results have varied in degree and duration with a recurrence soon after cessation of treatment in the majority of instances. There remains a great need for a broad therapeutic approach in the handling of these patients to assure the usual limited success.

#### Psoriasis

A 12 year old white female with severe psoriasis has received a course of ACTH therapy consisting of 100 mg. on the initial day followed by 75 mg. daily for 10 days and then gradually withdrawn during 4 days. This patient responded remarkably during therapy and has remained much improved during the 3 month period following therapy.

#### Scleroderma

One 8 year old white male with longstanding scleroderma has been treated with cortisone. Sufficient time has not elapsed in order to determine whether or not the



rate of progression of the pathological process has been altered. It was not anticipated that there would be a reversal of the process.

### Summary

A summarizing statement of our experiences in childhood with the use of ACTH and cortisone has been presented. These hormones have been used in the treatment of acute rheumatic fever, rheumatoid arthritis, the nephrotic syndrome, acute leukemia, eczema, psoriasis and scleroderma. The benefits have been variable in extent and duration and of a temporary nature.

Brief mention is made of the precautions, dosage, diagnostic criteria, etc. and incomplete references are made to the literature.

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## EFFECTS OF CORTISONE AND ADRENOCORTICOTROPIC HORMONE (ACTH) IN ARTHRITIS\*

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Led by his prolonged observations of the potential reversibility of rheumatoid arthritis<sup>1</sup>, Hench and his co-workers<sup>2</sup> in 1948 first demonstrated clinically the antirheumatic properties of cortisone and adrenocorticotrophic hormone (ACTH). Their experience stimulated widespread investigations of the physiological effects of these hormonal agents in a variety of disease processes. Thorn<sup>3</sup>, Sprague<sup>4, 5</sup>, and others<sup>6</sup> have reported the findings of such studies.

Some of the most favorable results produced by the use of cortisone and ACTH have been observed in the so-called rheumatic diseases. Such benefits have aroused new hope for discovery of a common etiology of these diseases and thereby a defini-

tive treatment of them. In spite of the rapid advancement of knowledge concerning the changes induced by cortisone and ACTH, many investigators, including Sprague<sup>6</sup> and Hench<sup>2, 7</sup>, have repeatedly warned that these agents do not afford a cure of the rheumatic conditions. They emphasize that the hormones are only experimental tools for studies in physiology and cannot yet be elevated to the realm of clinical therapeutics.

### Rheumatoid Arthritis

The striking, beneficial effects of cortisone and ACTH in cases of rheumatoid arthritis have been described by numerous observers<sup>2, 3, 6-10</sup> and are now well known. The pattern of response to the hormonal substances is rather uniform. Within a few hours to a few days after the initial dose, there is usually a marked, and often dramatic, reduction of articular and muscular stiffness. This is followed soon by relief

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of pain at rest. Further lessening of stiffness then occurs, accompanied by a progressive relief of articular tenderness and pain on motion. Elevated sedimentation rates and fever, when present, tend to return to normal ranges and associated anemias improve.

Such a response generally requires large, suppressive doses of cortisone or ACTH initially, followed by maintenance doses of approximately 100 mg. of cortisone daily or 40 to 60 mg. of ACTH every 6 hours. The initial improvement may continue to partial to complete remission under maintenance dosage. In most cases the degree of benefit obtained varies indirectly with the duration and severity of the disease process.

Withdrawal of the hormones usually precipitates a prompt relapse of the disease to its former severity, although Hench<sup>2,7,10</sup>, Boland<sup>8</sup>, and others have reported sustained remissions in several of their cases. Attempts have been made to maintain immediate improvement by continuous, long-term administration of cortisone and ACTH. Results of these studies have been disappointing in the hands of most observers, due chiefly to the development of undesirable physiological or "toxic" effects.

Boland and Headley<sup>13</sup> claimed maintenance of satisfactory improvement in 32 of 42 patients by the use of small daily doses of cortisone. Hench and his colleagues<sup>10</sup> have proposed a study of several plans for prolonged administration of cortisone and ACTH to sustain their initial effect. These include separate, alternate, and combined doses in both continuous and discontinuous courses. In the observations of Rosenberg<sup>11</sup>, intermittent dosage schedules have been declared a practical and relatively safe measure in long-continued use of both hormonal agents.

Recent reports by Margolis and Caplan<sup>12</sup> stress a marked tendency toward deterioration in the degree of improvement with prolonged administration of ACTH in rheumatoid arthritis. These investigators therefore have suggested the combined use of chrysotherapy, as advocated by Adams and Cecil<sup>14</sup>, with ACTH. Gold salts thus could maintain for long periods the re-

mission induced by ACTH and obviate the continued use of the hormone.

The superiority of either cortisone or ACTH in its influence on rheumatoid arthritis has not been established. Each hormone is effective in relieving symptoms of the disease but possesses advantages and disadvantages which must be weighed, especially in consideration of long-term administration.

During the last year at the John Gaston Hospital, we have observed the effects of cortisone on 6 patients suffering from chronic rheumatoid arthritis. In all patients the disease process was moderately severe to severe in degree. Cortisone acetate was administered in an average total dose of 3.5 Gm., which included large initial doses and an average daily dose of 100 mg. The average duration of administration of the hormone was 37 days.

All of the patients demonstrated subjective and objective improvement within 48 hours after the initial dose of cortisone. All likewise were completely asymptomatic within 30 days. Temperature and sedimentation rates, which were increased in most of the patients, decreased rapidly to normal. Hematocrit values increased steadily in each case.

Upon withdrawal of cortisone, 4 patients showed prompt relapse within 2 to 24 days. Two patients maintained minor improvement for 3 months. The 4 patients demonstrating return of symptoms were given second courses of cortisone. Of these only 1 experienced a rapid response to attain complete remission. In the other 3 cases slow but marked improvement was obtained while symptoms continued though less severe.

The patient who displayed complete remission with each of two courses of cortisone was maintained in her second remission for a period of 6 weeks. This was accomplished by the administration of 150 mg. of cortisone twice weekly. When the dosage was reduced for withdrawal, the patient experienced return of symptoms within 8 days.

Additional physiological effects of "moon face," "buffalo hump," hypertrichosis, hyperpigmentation, oligomenorrhea, and psy-



chic aberrations were noted among the patients but were inconsequential. One patient, who displayed emotional instability previously, showed periods of profound depression.

Five of the 6 patients are now receiving chrysotherapy alone. Two have shown excellent response and are receiving maintenance doses of gold salts. The other 3 patients are experiencing moderate to major improvement in articular symptoms and function.

### Gouty Arthritis

Several observers have described dramatic relief induced by ACTH in acute attacks of gouty arthritis. Such attacks may be partially or completely alleviated by small doses of the hormone. Wolfson<sup>15</sup> noted complete relief within 12 hours in 12 of 18 patients receiving only 50 mg. of ACTH. Similar, but less striking, results have been reported by other investigators<sup>3, 7, 8, 16, 17</sup>. Many cases require additional doses of ACTH for relief. Gutman and Yü<sup>16</sup> found 3 of 10 patients to respond unsatisfactorily to the hormone.

Withdrawal of ACTH, after its use to relieve an acute attack of gout, may produce a rebound of gouty symptoms, usually within 36 hours. Although these effects seem paradoxical, Gutman and Yü<sup>16</sup> maintain that such exacerbations do not represent the initiation of a new attack of gout, but rather suggest the re-exhibition of the underlying disease when the suppressive action of ACTH is terminated, similar to that occurring in rheumatoid arthritis.

Administration of ACTH to a symptom-free individual with gout may likewise precipitate an acute attack of gout. Such exacerbations have been reported by Thorn<sup>3</sup>, Boland<sup>8</sup>, Wolfson<sup>15</sup>, Gutman<sup>16</sup>, and others. Wolfson explains these rebound phenomena on the basis of an inherent inability of persons with gout to resume readily their endogenous ACTH production after the exogenous ACTH is withdrawn. He suggests the combined use of colchicine and the hormone to prevent such attacks after the latter is terminated, an opinion shared by Gutman<sup>16</sup> and Margolis<sup>17</sup>.

Reports of the effects of cortisone in

gouty arthritis have been sparse. According to Bauer<sup>18</sup> gouty arthritis responds more promptly to ACTH than to cortisone. Boland and Headley<sup>3</sup> studied two cases of acute gout in which large doses of cortisone produced prompt subjective and objective relief within 5 and 18 hours. Withdrawal resulted in an acute recurrence of the attacks, one of which was terminated without further recurrence by diminishing smaller doses of the hormone.

A recent report by Friedlander<sup>19</sup> describes rapid and dramatic relief in a case of acute gout following the administration of cortisone. This author suggests that cortisone is a more efficacious therapeutic agent than ACTH in acute gout and may prove to be important in preventing tophi.

The mechanism whereby these hormonal agents provide relief of symptoms in gout is unknown, as is their mechanism of action in rheumatoid arthritis. Although cortisone and ACTH have been shown by Thorn<sup>3</sup> and others to increase urinary excretion of urates, it is thought by most observers that this effect is not responsible for relief of symptoms. Similarly, salicylates plus sodium bicarbonate, and carinamide, which are agents frequently employed in gout, are more uricosuric than ACTH, yet do not produce the pronounced effect of these hormones in acute gout. This observation has been noted by Gutman and Yü<sup>16</sup>.

It has been hypothesized by Hench and his co-workers<sup>10</sup> that the beneficial effects of cortisone and ACTH may be exerted at a tissue level, cortisone acting in some unknown manner as a shield-like buffer to susceptible tissues against various irritants. A similar peripheral tissue response to these agents in gout seems plausible.

At the John Gaston Hospital we have studied the effects of cortisone on one patient with chronic gouty arthritis. The patient, a 41 year old male, had experienced recurrent attacks of gout, progressively frequent and severe, for 20 years. He presented marked deformities of his extremities and large, scattered tophi over the extremities. Some tophaceous areas were ulcerated. The patient was bed-ridden. Hyperuricemia and azotemia were present. X-rays demonstrated extreme deformities

of the limbs with contractions, ankyloses and calcification as well as punched-out areas of bone.

Cortisone was administered initially in large doses. The patient experienced early relief of pain within 2 hours and complete relief of pain within 4 hours. Cortisone was continued for 60 days in doses of 100 mg. daily and then gradually reduced. The patient improved steadily and finally became able to walk without support. He remained free of pain, and the tophi decreased in size.

Withdrawal of cortisone was followed by return of articular symptoms, which were partially relieved by colchicine. At the end of a 9 months follow-up period, the patient was experiencing pain and stiffness but remained ambulatory and subjectively much improved.

#### Osteoarthritis

Cortisone and ACTH have provided relief of symptoms in a variety of other articular conditions. The prompt response of the articular manifestations of rheumatic fever and disseminated lupus erythematosus to these hormonal agents is well documented in the studies of Thorn<sup>3</sup>, Hench<sup>7, 10</sup> and others<sup>6</sup>. Conditions such as psoriatic arthritis and tuberculous arthritis likewise have shown a pronounced, rapid alleviation of articular symptoms under the administration of cortisone and ACTH, although other manifestations of the diseases were not favorably influenced<sup>3, 6, 7, 10</sup>.

Because of the general reservation of small supplies of these hormones for use in more serious diseases, reports of their effect on osteoarthritis are necessarily limited. Thorn<sup>3</sup> described rapid, marked relief of pain and increased mobility of joints in a patient given ACTH. Hench<sup>7</sup> observed a sustained response to cortisone in a patient with osteoarthritis and leukemia.

Steinbrocker<sup>18</sup> noted moderate to marked reduction of pain and improved function in 3 patients with osteoarthritis of the hip. However, Engleman<sup>18</sup> reported no effects in 3 cases of osteoarthritis, although the patients had a slight decrease in severity of their pain. These observers, together with Bauer<sup>18</sup> attribute the beneficial results in

such cases to an analgesic effect of the hormones. Thorn<sup>3</sup> has emphasized the favorable response in osteoarthritis as a caution against attempting to diagnose the type of joint disease present on the basis of a subjective response of ACTH or cortisone.

Recently we have observed the effects of cortisone on 2 cases of osteoarthritis. Each patient received 1 Gm. of the hormone over a 7-day period. One patient experienced moderate subjective improvement, while the other noted only mild response of symptoms. Return of symptoms to their previous severity followed withdrawal of the hormone in both cases.

#### Summary

Although cortisone and ACTH possess definite antirheumatic properties they are not curative agents.

Both cortisone and ACTH afford striking relief of symptoms and signs of rheumatoid arthritis. Withdrawal of the hormones usually produces a prompt relapse to previous symptoms.

Prolonged administration of these substances is limited by the frequent development of undesirable side effects. However, studies of this problem are in progress, and recent reports are encouraging. Neither hormone has established superiority over the other.

Local experiences in the use of cortisone in 6 patients with rheumatoid arthritis are described.

ACTH and cortisone may produce dramatic relief in acute attacks of gouty arthritis. Withdrawal of these agents usually precipitates further acute attacks, even after their administration to asymptomatic gouty patients. A suggested explanation of this phenomenon and method of preventive treatment are presented.

The mechanism of action of the hormones in gout and rheumatoid arthritis is unknown but is thought to occur at a tissue level.

Results of the use of cortisone in a local patient with gouty arthritis and tophi are related.

Cortisone and ACTH generally cause prompt relief of articular symptoms in



various diseases manifesting such symptoms. Their use in cases of osteoarthritis has been limited, but most observations of their effect in such patients have been favorable.

Personal study of the action of cortisone in 2 cases of osteoarthritis is described.

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## THE COLLAGEN DISEASES AND ALLERGY\*

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The observation by Hench of the striking effect of cortisone and ACTH on rheumatoid arthritis resulted in prompt therapeutic trials of these agents in the collagen diseases and hypersensitivity states. There was adequate justification for these trials since rheumatoid arthritis is frequently listed with the collagen diseases. The work of Rich and Gregory<sup>1</sup> has demonstrated con-

vincingly that certain lesions of the collagen disorders are hypersensitivities. Renewed interest in disseminated lupus erythematosus has been stimulated by certain clinical similarities to rheumatoid arthritis, by the failure of previous therapy to modify regularly its course, and the demonstration of the "L.E. cells" by Hargraves<sup>2</sup>.

### Disseminated Lupus Erythematosus

Thorn and associates<sup>3</sup> in 1949 reported treatment of three patients with acute disseminated lupus erythematosus with ACTH.

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They noted marked clinical improvement but laboratory evidence of regression occurred five days after therapy was stopped. Thorn and associates<sup>4</sup> later reported one complete remission lasting six months. Brunsting and associates<sup>5</sup> of the Mayo Clinic administered cortisone to 7 patients with acute disseminated lupus erythematosus. They observed symptomatic relief and improved ability to tolerate stresses such as infection and surgery. They observed one remission lasting almost a year but point out that "cortisone cannot be considered in the light of a cure for lupus erythematosus."

Soffer and associates<sup>6</sup> of Mt. Sinai Hospital observed "good results" in eleven of fourteen patients. Complications observed by them included acute congestive heart failure, convulsive seizures, frank diabetes and suicidal depression. Both Thorn and Brunsting have observed psychotic episodes during treatment. The Mt. Sinai group was able to discontinue therapy temporarily in only one patient.

Our results have been similar. A 43-year old negress with acute disseminated lupus erythematosus received 8.1 Gm. of cortisone in 83 days with striking symptomatic benefit. Fever returned one week after cortisone was stopped. The characteristic skin rash developed six weeks later and she died 14 weeks after cortisone therapy. A 33-year old negress with acute disseminated lupus erythematosus received 4.9 Gm. of cortisone in 41 days. She experienced dramatic relief from incapacitating arthralgia in 48 hours but regressed under treatment, dying a few days after cessation of therapy. A third negress with acute disseminated lupus erythematosus is living 6 months after a course of cortisone. She has subjective and objective evidence of disease at the present time. A 42-year old white male with subacute disseminated lupus erythematosus noted marked subjective improvement during ACTH therapy. There was no objective improvement and the subjective changes were short-lived. A 49-year old white male with discoid lupus erythematosus received 1.2 Gm. of ACTH in 19 days. In spite of the absence of constitutional symptoms prior to therapy he ex-

perienced an improved sense of well-being and described improvement in the sensation of the affected areas. There was no objective benefit.

### Scleroderma

Bayles and associates<sup>7</sup> treated four cases of scleroderma with ACTH with results similar to ours with cortisone. We treated two negresses with generalized scleroderma including pulmonary and esophageal lesions. Both received relief from joint soreness and noted increased pliability of the skin. Repeated biopsies revealed no histologic change in the skin. Pretreatment vital capacity of 65 per cent of normal in one of our patients was reduced to dyspnea at rest by fluid retention. The post-treatment status of these patients soon approximated their pretreatment status.

### Periarteritis Nodosa

Schick and associates<sup>8</sup> of the Mayo Clinic described treatment of periarteritis nodosa in four patients with cortisone and in two patients with ACTH. They found prompt subjective relief and histologic evidence of healing of the arterial lesions. Two of their patients died with widespread visceral infarction from fibrous obliteration of vessels. They have not observed permanent remissions and suggest that these drugs must be given early, intensively and in prolonged courses prior to the occurrence of extensive vascular damage.

The only case of periarteritis we have observed under treatment was an atypical one. A 41-year old white woman had irregular attacks of abdominal pain, nausea and vomiting associated with fever, leucocytosis and mild eosinophilia for four years. Erythrocytes, casts and albumin were present in the urine. In August 1950, one of the attacks was associated with bloody diarrhea and scattered petechial lesions. There were multiple, small, superficial ulcerations in the recto-sigmoid colon and the stools were negative for parasites. Diagnosis of periarteritis nodosa was based on skin biopsy. She has had repeated courses of cortisone with marked symptomatic benefit. Hypertension, hematuria, cylindruria and heavy albuminuria persist. Biop-



sy two months after cortisone was started revealed no change in appearance of the vessels.

Cranial arteritis is said<sup>8</sup> to respond to these drugs much as periarteritis does. Astwood<sup>9</sup> reported that thromboangiitis obliterans responds well to these agents.

### Allergy

A few months after the initial report by Hench, Bordley and associates<sup>10</sup> of Johns Hopkins described the effect of ACTH in a few allergic diseases. Their first patient had severe exfoliative dermatitis due to iodine and responded remarkably to ACTH. A second patient with a serum sickness type of penicillin reaction responded to ACTH in 24 hours. They also observed prompt control of the chronic asthmatic state and striking changes in the upper respiratory tract in response to ACTH. Their observations were continued and described in a series of papers<sup>11-13</sup> in 1950.

Randolph and Rollins<sup>14</sup> treated eleven patients with severe bronchial asthma with short intensive courses of ACTH with complete to 50 per cent relief in ten patients. Duration of relief varied from one week to five months. Exposure to known food and inhalant allergens during or shortly after therapy did not produce symptoms. Epinephrine regained temporarily its effectiveness. They also observed complete relief from ragweed hay-fever in three patients.

Carryer and associates<sup>15</sup> of the Mayo Clinic have reported similar results in cortisone treatment of bronchial asthma. We have had similar results with both drugs in bronchial asthma. Our results were similar also in that complete remission required a minimum of three or four days.

Carey and associates<sup>11</sup> of Johns Hopkins report gratifying results of ACTH and cortisone therapy in a variety of drug hypersensitivity reactions. The offending agents included iodine, penicillin, atropine and sulfonamides. The serum sickness of penicillin reaction was relieved completely in three or more days but relapse occurred in some after treatment.

The most gratifying results from cortisone and ACTH therapy in the hypersensitive states are observed in those conditions

which are self-limited, such as certain dermatitides, serum sickness type of reactions and sharply seasonal allergies.

### Summary

1. ACTH and cortisone produce spectacular amelioration of symptoms in acute disseminated lupus erythematosus without effecting a cure. Subacute and discoid lupus erythematosus do not justify the use of cortisone or ACTH therapy.

2. The slight benefit observed in scleroderma does not justify cortisone or ACTH therapy.

3. Periarteritis nodosa may justify cortisone or ACTH therapy. Some patients are benefited, some made worse and none cured.

4. Most patients in status asthmaticus may obtain temporary relief in 2-4 days from cortisone or ACTH therapy.

5. Cortisone and ACTH exert some of their most gratifying effects in self-limited disorders, such as certain of the hypersensitivity states.

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## ACTH AND CORTISONE IN MISCELLANEOUS MEDICAL CONDITIONS\*

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The value of ACTH and cortisone in various diseases was reviewed by Thorn<sup>1</sup> in June, 1950. Subsequently, numerous additional reports of the use of ACTH and cortisone have appeared. Previous presentations in this symposium have stressed the more common applications of these agents. I should like to present the results of certain additional applications. Since personal experience with ACTH or cortisone in these diseases is negligible, these data are largely based on the reports of others.

It is important to emphasize that in the entities I shall mention, to even a greater degree than in those previously discussed in this symposium, the therapeutic usefulness of ACTH and cortisone has not yet been completely evaluated. There is no question that hormonal therapy will often cause a remission of the outstanding features of a disease. Invariably, however, the effect has been one of suppression and not cure. In most diseases, the role of ACTH and cortisone in therapy can be established only after many years of experience. Probably, their ultimate usefulness will prove to be less than the current wave of enthusiasm concerning them would indicate.

### Sarcoidosis

Although Thorn originally reported that

ACTH and cortisone have little effect on sarcoidosis, subsequent experience has indicated that this disease may show some response to these agents. Sones and his associates<sup>2</sup> administered cortisone in dosage of 100 mg. twice daily to 2 patients with sarcoidosis. Promptly, in the first patient, there were relief of ciliary injection, flattening of facial cutaneous nodules, decrease in size of the hilar shadows, and clearing of the pulmonary infiltrate seen on the radiogram of the chest. Improvement was maintained for the 3 months of post-therapeutic observation. The second patient also showed decrease in the size of the lacrimal and parotid glands and partial clearing of the miliary pulmonary infiltrate. Improvement in this patient was also maintained over several months observation.

In Galdston's one patient<sup>3</sup> with sarcoidosis treated with ACTH, there were disappearance of joint pains, lessening of fever and clearing of skin nodules. Increase in the size of the right paratracheal nodes occurred, however. Biopsy of a tonsil after 20 days of therapy showed fibrosis and hyalinization of the sarcoid tissue. The vital capacity increased from 65 percent to 79 percent of normal; the maximal breathing capacity from 65 percent to an average of 90 percent of normal. Healing of an ulcer induced by injection of Kveim antigen took place.

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The fact that 2 of these 3 patients developed psychosis is noteworthy. Paranoid schizophrenia in one of Sones' cases required electrical shock therapy. In Galdston's case depression, eventuating in suicide, developed.

### Berylliosis

Pulmonary beryllium granulomatosis, occurring usually in individuals exposed to beryllium in the manufacture of fluorescent lamps, has shown changes following use of ACTH and cortisone. Kennedy and his group<sup>1</sup> found that the administration of ACTH, 25 mg. 4 times daily for 28 days, was followed in one case by clearing of pulmonary rales, decreased exertional dyspnea, decrease in pulmonary markings and a decrease in the size of nodules and hilar nodes shown on the chest roentgenogram. The vital capacity increased 1 liter, the amount of residual air became normal, and the maximal breathing capacity increased from 55 percent to 115 percent of the expected normal. A few patchy densities appeared in the lung fields 10 days after the hormone was withdrawn but most of the improvement was maintained. During the course of therapy the patient presented considerable aggressiveness and emotional instability.

Kennedy and associates<sup>2</sup> have subsequently reported similar results in 2 additional patients. All have shown subjective improvement with increased feeling of well-being and strength. One patient, who had berylliosis for 3½ years, was able to climb only a few steps prior to therapy. After therapy he could climb 4 flights of stairs without dyspnea. His vital capacity increased from 35 percent to 55 percent of the predicted normal; the maximal breathing capacity from 48 percent to 115 percent. The other patient who had been ill for 2½ years demonstrated an increase in the vital capacity from 58 percent to 91 percent, and the maximal breathing capacity from 80 percent to 106 percent of the predicted normals. Regression occurred, however, after treatment was discontinued, although not back to the pretreatment level.

Kennedy postulates that improvement in these cases was due to destruction of

lymphocytes in the inflammatory reaction, or possibly to resolution of fibrosis, thus facilitating diffusion of gases across thickened alveolar membranes.

### Other Chronic Pulmonary Disease

A patient with silicosis, given ACTH, 100 mg. daily for 30 days, showed an increase in the vital capacity from 58 percent to 74 percent of normal and an increase in the maximal breathing capacity from 70 percent to 100 percent<sup>3</sup>. Psychiatric aberration occurred during therapy. Radiologic changes were not observed. No observation was made of the permanence of the results. West and co-workers<sup>4</sup> found improved pulmonary function in a case of granulomatous pulmonary disease of unknown origin and another case of obscure chronic pulmonary disease, presumably fibrosis, of unknown origin. Pulmonary fibrosis due to scleroderma, however, failed to show improvement. Cases of hypertrophic emphysema and pulmonary fibrosis treated with ACTH by Galdston and associates<sup>5</sup> showed no definite improvement except in one case in which bronchial asthma was an outstanding feature. It is likely that any beneficial effects obtained by patients with emphysema are due to the relief of associated asthma.

### Infectious Diseases

Kass, Ingbar, and Finland<sup>7</sup> found that patients with both primary atypical pneumonia and pneumococcal pneumonia show prompt defervescence, relief of symptoms and disappearance of toxicity when treated with ACTH or cortisone. In one case, however, bacteremia persisted. The pulmonary infiltrate as seen in radiograms of the chest was unaffected in most cases. Obviously, use of these hormonal agents should not be made in the routine treatment of pneumonia. The possible use of them in conditions in which there is overwhelming infection, in an effort to bolster the body's defenses, has yet to be explored.

The experience of Smadel<sup>8</sup> with the combined use of cortisone and chloramphenicol in the treatment of typhoid fever may have more practical significance. Patients with typhoid fever who are treated with chloramphenicol alone show little if any im-

provement for 36 hours after therapy is instituted, and usually are not afebrile for 4 days. The persistence of symptoms has been attributed to the continued presence in the body of toxic products of bacteria killed by the antibiotic or of a toxin liberated by the bacilli. In contrast to this average experience with chloramphenicol alone, those patients who received cortisone in addition were afebrile, euphoric, and hungry 24 hours after therapy was started. Cortisone was given in a dosage of 300 mg. the first day, 200 mg. the second day, and 100 mg. on each of 2 succeeding days. Chloramphenicol was given in an initial dosage of 3.0 Gm., then 1.5 Gm. every 12 hours for 9 doses, then 1.5 Gm. once daily for 10 to 11 days. Two relapses occurred in a series of 8 patients so treated. This incidence of relapse is greater than usually observed, but is of questionable significance in a series of such small proportions.

Use of ACTH and cortisone in tuberculous patients deserves comment. Tompsett and associates<sup>9</sup> have shown that there are non-specific clinical improvement, subsidence of laryngeal lesions, and loss of cutaneous hypersensitivity in tuberculous patients. However, the adverse effect of cortisone on tuberculosis in the guinea pig suggests that these hormones should not be used in the presence of active tuberculosis.<sup>10</sup> Deleterious effects are likely to interfere with the formation of fibrous tissue and with mechanisms of tissue immunity.

Patients with streptococcic pharyngeal infections show no response of either symptoms or physical signs to therapy with cortisone. In Hahn's series, patients receiving cortisone were febrile for a longer period than those who did not.<sup>11</sup>

#### Blood Dyscrasias

Dameshek and co-workers have recently reported their experience in the treatment of acquired hemolytic anemia with ACTH. Four of 5 patients showed complete disappearance of the hemolytic features of their illness. Dameshek postulated that the fundamental defect in acquired hemolytic anemia is the production of abnormal agglutinins by lymphoid tissue. The favorable effect of cortisone in these patients is

thought to be due to the effect of the hormone in causing involution of lymphoid tissue, thus disrupting the production of agglutinins.

Caldwell<sup>13</sup> has reported recovery from agranulocytosis probably induced by sulfonamides coincident with the administration of cortisone. Bethell<sup>14</sup> observed 3 patients with idiopathic thrombocytopenic purpura in whom prolonged clinical and hematological remissions were induced by administration of ACTH. In a fourth patient, however, hematologic improvement was suboptimal.

#### Malignancies

Our experience with administration of cortisone to one patient with metastatic carcinoma is in accord with the experience of others who have found no effect of either this agent or ACTH on cancerous masses. Because of the effect of ACTH and cortisone in causing involution of lymphoid tissue, these agents were given early to patients with lymphoid malignancies. Effects in acute leukemia have been previously described in another portion of this symposium. Our administration of ACTH to one patient with chronic lymphoid leukemia has resulted only in relief of fever and partial relief of symptoms without effect on the hematological findings.

Two patients with lymphosarcoma treated by Spies and associates<sup>15</sup> for 14 days with cortisone showed symptomatic response for 3 and 6 weeks respectively. In neither did malignant cells disappear. Pearson and Eliel<sup>16</sup> observed definite shrinking of lymphosarcomatous masses in 2 of 6 patients with the use of ACTH or cortisone. The remission lasted 3 months in each. The remaining 4 died while still receiving therapy. No change in the pathological features of biopsy specimens was observed. We have observed one case of lymphoblastoma in which cortisone was given for 13 weeks. While receiving cortisone the patient was relatively free of pain. Upon its discontinuance there was rapid deterioration of the patient's condition. Whether the hormone actually contributed more than non-specific relief of pain and improvement in the sense of well-being is debatable.



Use of these hormones in Hodgkin's disease has been disappointing. In Spies' one case<sup>15</sup> there was clinical improvement, but biopsy of neck glands after therapy showed no histological alteration attributable to treatment. Stickney and colleagues<sup>15</sup> found regression of spleen and lymph nodes in their 3 patients without change in the appearance of biopsy specimens. All beneficial effects had disappeared 15 to 30 days after therapy was stopped. Schoenbach<sup>19</sup>, in an experience with 10 patients having Hodgkin's disease, found no response at all in 4 patients with liver involvement. There were subjective improvement and relief of fever in the remaining six. No potentiation of the effect of aminopterin or methyl-bis by concomitant use of cortisone or ACTH was observed. In the 6 patients with Hodgkin's disease reported by Pearson and Eleil<sup>16</sup> slight shrinkage of enlarged lymph nodes and spleen was observed in 2, diminished fever and pruritus occurred in 2, and temporary relief from respiratory obstruction occurred in one. Recurrence of symptoms and signs was prompt after therapy was discontinued.

#### Alcoholism

Smith<sup>20</sup> is largely responsible for current interest in the treatment of alcoholism by hormones. He considers alcoholism to be a primary endocrine disease in which there is pituitary deficiency, possibly secondary to hypothalamic dysfunction. In acute alcoholic intoxication, either aqueous adrenal cortical extract (ACE) or ACTH seems effective. During the first 24 hours a total of 20 to 40 cc. of ACE are given at intervals of every 6 hours. Then 5 to 15 cc. of ACE are given in the succeeding 24 hours. Vitamin C is given concomitantly. ACTH was found superior to ACE in treating delirium tremens. A dose of 100 to 150 mg. of ACTH is given during a 24 to 36 hour period. Patients are said to show improvement within 6 to 12 hours.

Chronic alcoholic patients were found to feel well when given 2 to 3 cc. of ACE intramuscularly 3 times weekly. We have personally observed for a short period one case of a chronic alcoholic patient who has found relief from restlessness, insomnia,

and nervousness coincident with the injection of 1.0 cc. of lipo-adrenal extract (Upjohn) daily. Smith emphasizes that hormonal therapy in no manner comprises a cure for alcoholism in that individuals so treated remain unable to tolerate alcohol in a normal fashion.

#### Comment

Evaluation of the true worth of ACTH and cortisone in the entities just discussed, as well as the numerous other conditions in which they have been applied, must include consideration of the non-specific effects of the hormones in promoting euphoria, relief of pain, improvement of appetite, and depression of fever. An individual with almost any disease, or no disease at all, will show some or all of these effects regardless of any demonstrable change in abnormalities of tissue. Such effects are probably responsible to a considerable extent for the response of patients with infectious diseases and alcoholism, although possible enhancement of mechanisms of resistance in the former cannot be denied. In sarcoidosis, berylliosis, and other chronic pulmonary diseases there must be involutionary changes in the pulmonary lesions themselves as evidenced by radiological criteria. In acquired hemolytic anemia, there may be direct depression of antibody formation. Whatever specific changes occur in patients with leukemia and lymphosarcoma seem related to the ability of ACTH and cortisone to induce involution of lymphoid tissue. The mechanism by which such involution is brought about is, of course, quite obscure.

It may develop that the most important worth of these hormones will reside not in their possible therapeutic efficiency in a wide variety of diseases, but in the fact that their use will focus successful effort toward unraveling the basic problem of disease and man's resistance to it.

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## CORTISONE AND ACTH IN SURGERY\*

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A major surgical procedure constitutes a common form of stress in man and as such brings about an increase in adrenal cortical function. That this response is important is evidenced by the untoward reaction one sees in surgery upon patients with Addison's disease. Because of this vital importance of adrenal hormones in the reaction of the organism against stress, Roche and associates point out the importance of a

clinical indicator to reveal the presence of these hormones in adequate amounts.<sup>1</sup> A very low eosinophile level in the period immediately following surgery suggests a normal pituitary-adrenal response and would tend to rule out cortical insufficiency as a cause of any post-operative complication such as shock. A normal or high eosinophile count in the immediate post-operative period suggests the presence of adrenal insufficiency. The pituitary and adrenal reserve may be determined pre-operatively by simple clinical tests. In the ACTH test 25 mg. of ACTH are injected intra-muscularly

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and the eosinophiles are counted before and four hours after injection. The normal eosinophile level varies widely between 80 and 500 per cu. mm. of blood. A fall of 50 per cent to 80 per cent in the eosinophiles in the first four hours is indicative of a normal adrenal cortical reserve. When adrenal cortical insufficiency is present this fall does not occur. In the epinephrine tests 0.3 mg. are injected subcutaneously and the eosinophiles are counted as for the ACTH test. A fall of more than 50 per cent in the eosinophile count is indicative of normal pituitary-adrenal reserve.

In the absence of an adrenal cortex or in the absence of a pituitary with which to stimulate the adrenal cortex an animal exposed to any type stress is unable to survive.<sup>2</sup> Normally, stressing situations are overcome if these organs are intact. Thus the successful outcome of a major surgical procedure is dependent upon a normal pituitary-adrenal response.

In those cases in which there is a normal pituitary-adrenal response there is sufficient endogenous supply of hormones to take care of these stress situations. If there is an exhaustion of this mechanism with a failure to meet an overwhelming or prolonged period of stress, one might give ACTH or cortisone as a means of combating this. Little has appeared in the literature about the use of ACTH or cortisone in surgical conditions.

In January of this year Whitelaw reported an extremely interesting case in which ACTH was administered to a severely burned individual.<sup>3</sup> A 23-year-old male received severe gasoline burns to an estimated 90 per cent body surface (later corrected to 70 per cent). During the first 24 hours he was treated with plasma and 5 per cent glucose in isotonic sodium chloride. Pressure dressings were applied. After the first 24 hours he was moved to another hospital at which time complete absence of circulating eosinophiles indicated an adrenal cortical response to the burn stimulus. He was then given ACTH, 20 mg. every 6 hours intramuscularly, and no other medication except ascorbic acid and morphine sulphate. Whitelaw feels that this patient's subsequent course in which the physiologic phenomena usually present in severe burns

were either eliminated or greatly reduced indicated the necessity for exogenous ACTH because of the failure of endogenous ACTH to meet the stress of this severe burn. An extremely interesting point brought out is the possibility of blocking the antigen-antibody response with use of ACTH making homografts feasible.

Experimental evidence has been presented which would seem to confirm these findings. Crassweller tested the effect of cortisone-active material in mice subjected to thermal burns.<sup>4</sup> Deaths from these burns were greatly reduced in those mice receiving the cortisone-active material. They also point out that death from shock and sepsis has been reduced in recent years with improvement in burn therapy. It is their feeling that the cortisone effect is on the toxic phase and in this connection bring up the reputed antihistaminic action of cortisone as a point of interest.

That this belief is not enthusiastically shared by all is evidenced by Tamerin's comment on the above case report.<sup>5</sup> He appears to think that the patient's burn was not as extensive as thought being based on a two-dimensional rather than a proper three-dimensional determination. Also he questions the advisability of postponing skin graft while awaiting for any effect ACTH might have on spontaneous epithelialization. He cites a case of extensive burn in which ACTH was not lifesaving and other cases in which homografts did not take. Baxter also failed to show prolongation of survival of homografts in patients receiving ACTH or cortisone.<sup>6</sup>

In 1949 Cope conducted experiments on dogs in an attempt to evaluate the use of adrenal cortical extract in treatment of burn shock.<sup>7</sup> Neither a sparing action on the loss of plasma into a burn wound nor a reversal of the pattern of electrolyte and metabolic changes was found. No evidence was obtained to substantiate the concepts that these gland extracts are useful in the treatment of burns.

Recently You and Sellers experimenting with rats reported that protection against burn shock is afforded by desoxycorticosterone when given prior to burning but not adrenal cortical extract.<sup>8</sup> When adren-

al cortical extract or desoxycorticosterone were given after burning, variable and inconclusive results occurred. Neither substance appeared to be more beneficial than small amounts of saline.

Suffice it to say the role of the adrenal cortex in burns remains obscure. As additional work both clinical and experimental is reported more light might be thrown on this subject.

Of the side effects attributed to the use of ACTH and cortisone retardation of wound healing excites particularly the surgeon's interest. In 1949 Ragan and his co-workers observed that granulation tissue formed poorly in those patients under treatment with ACTH.<sup>9</sup> In one patient a biopsy wound made a day prior to ACTH treatment required 12 days to heal, while a biopsy wound made the day before ACTH treatment was discontinued healed in 4 days. In a second patient an episiotomy wound failed to heal and a decubitus ulcer in this patient showed very little granulation tissue. A third patient developed a suppurative parotitis and an abscess on her back. Subsequent to incision and drainage neither area showed appreciable granulation while on therapy. Four days after therapy was stopped granulation tissue appeared in the wounds.

Following this observation experimental work was done to check this interesting feature. In a study in rabbits development of granulation tissue in cortisone treated animals was markedly delayed in all cases.<sup>10,11</sup> It was also shown in experimental animals that gross healing of fractures and absorption of hematomata were greatly delayed when receiving cortisone.<sup>12</sup> In an attempt to examine this process under control conditions in humans further experimental work was done and the observation made indicated that during ACTH therapy there is inhibition of wound healing in humans.<sup>13</sup>

Animal experimentation conducted by Baxter confirmed the findings of Ragan and associates.<sup>14</sup> With additional studies in humans wounds of skin and subcutaneous tissues showed a variable and apparently unpredictable response in different individuals. It was his belief that the fact that

some patients showed delay in wound healing and others did not might refer either to a variation in adrenal response or in reaction of the tissue to the same amount of adrenal hormone.

Beck pointed out another interesting problem for the surgeon, that is, the obscuring of certain signs and symptoms of acute abdominal emergencies occurring while patients are receiving ACTH.<sup>15</sup> Two cases of generalized peritonitis were given which presented deviations in the clinical picture from what one might expect to find.

One patient receiving ACTH because of Hodgkin's disease developed abdominal findings which post-mortem examination subsequently showed to be caused by pneumococcal peritonitis. None the less, there was no fever, no leucocytes, no rigidity and a normal pulse rate. A second patient being treated with ACTH because of a diagnosis of periarteritis nodosa developed severe abdominal pain on the seventh day of treatment. Twenty-four hours later laparotomy was advised with the tentative diagnosis of mesenteric thrombosis secondary to periarteritis nodosa. A perforated duodenal ulcer was found which showed no indication of attempt to seal off. This patient also showed a normal pulse rate and absence of muscular rigidity with no fever initially.

Habif reports a case of perforated duodenal ulcer in a patient receiving ACTH.<sup>16</sup> Therapy was given for a total of 29 days over a 36-day period. Nine hours after cessation of ACTH therapy the patient developed abdominal symptoms, subsequently diagnosed as generalized peritonitis due to perforation of a duodenal ulcer. Interestingly enough this patient exhibited an appearance of well-being complaining of moderate pain only, yet his abdomen showed a board-like rigidity. The surgeon must be aware of this tendency to mask the usual signs of infections.

Not only is it interesting to see the varied clinical findings presented by these cases of peritonitis, but one must also consider the possibility that their etiology has some relation to ACTH administration. While Habif intimates that the ulcer in his patient may have occurred during ACTH therapy Sandweiss has shown experimentally that Mann-



Williamson dogs treated with cortisone and ACTH lived longer than untreated animals.<sup>17</sup> He also cites four cases of chronic duodenal ulcers intractable to usual hospital management treated with ACTH or cortisone. One failed to respond. Another became symptom free during therapy and 9 months later felt well while a third became worse. The fourth patient improved but symptoms returned when therapy was discontinued. He cites another case of a patient with a gastric ulcer whose symptoms were relieved with a conservative ulcer regimen, but within 24 hours after ACTH was started there was a return of ulcer pain. On the third day of treatment marked epigastric tenderness with muscle rigidity appeared. On the fifth day there were definite signs of peritoneal irritation, and on the sixth day a return to an ulcer regimen afforded only partial relief. On the tenth day medication was stopped with continuation of the ulcer regimen. Within a few hours pain disappeared, and within 48 hours the signs of peritoneal irritation disappeared.

Still another side effect that has been reported is the altered state of blood coagulation time during ACTH and cortisone administration.<sup>18</sup> In a series of 175 patients treated with ACTH or cortisone, 10 showed some type of thrombo-embolic phenomena and 2 had fatal pulmonary emboli. This prompted a study in which 8 of 10 patients showed considerable shortening of the venous coagulation time while receiving ACTH or cortisone. The mechanism of this change was not determined. It was suggested that the danger of thrombosis due to a combination of the underlying disease and hypercoagulability secondary to ACTH or cortisone would warrant prophylactic anticoagulant therapy.

We can conclude only that cortisone and ACTH should continue to be considered experimental tools. We, as surgeons, must be aware of the value of these hormones and be alert to utilize them when the occasion demands but also should be able to recognize their dangerous potentialities.

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## CASE REPORT PRIMARY TUBERCULOSIS OF THE ADENOIDS IN A 28-YEAR-OLD NURSE\*

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There are very few reported cases of primary tuberculosis of the adenoids. Pegler in 1911 described a case of tuberculosis of the adenoids in an adult. Most cases reported are those in which sections of the tonsils and adenoids showed tubercles present in either one or the other or both. Crowe and MacCready<sup>2</sup> have reported the largest group of cases. In 1917, Crowe<sup>1</sup> reported a study of 46 patients during the operative period and during the first several years subsequent to operation. Another report in 1924 dealt chiefly with 50 cases most of whom had been under observation for from 5 to 10 years after operation. His studies led to the conclusion that tuberculosis of the tonsils or adenoids, though frequently accompanied by tuberculosis of the cervical lymph nodes, is rarely followed by active tuberculosis elsewhere in the body. In the 1924 report, many of the cases were in adolescents.

In 1938, Bordley and Baylor<sup>3</sup> reported 79 cases in which tuberculosis of the tonsils or adenoids was discovered at operation. These patients were discovered between 1912 and 1924 and were subjected to reinvestigation in 1935. Of 47 patients operated upon prior to the age of 14 years, 45 could be traced. Two had died of non-tuberculous diseases and one of tuberculous meningitis several months after operation. All of the 42 living patients were well and there was no evidence that any of them had developed pulmonary tuberculosis of the adult type subsequent to operation. The two patients who could not be traced were well when last seen, 15 to 22 months after operation. Of 32 patients operated upon past the age of 13 years, only 16 could be traced. One had died of non-tuberculous disease. At least two and possibly three had died of pulmonary tuberculosis. Of the 12 patients known to be alive, one had

progressive pulmonary tuberculosis and three others had fibroid apical pulmonary tuberculosis. Two additional patients had at one time signs of apical tuberculosis. Bordley and Baylor concluded that when one discovers tubercles in the tonsils, adenoids, or cervical lymph nodes of pre-adolescent children, the immediate prognosis depends upon the character of the disease elsewhere in the body. If the patient recovers from the existing tuberculosis of the lymph nodes, tonsils and adenoids he is very unlikely to develop adult forms of tuberculosis during the ensuing 15 to 20 years. Most of the adults who at the time of operation had pulmonary tuberculosis of the adult type had a very poor prognosis.

Markham<sup>4</sup> reported 15 cases of cervical adenopathy in children due to tuberculosis. Seventy per cent of the patients demonstrated tubercles in the tonsils and three cases showed tuberculous adenoids.

Crowe in 1924 reported that tubercles were present in 2.5 per cent of 1,000 cases of adenoidectomy in which there was no clinical tuberculosis present.

The following is a case report of a patient seen recently:

A 28-year-old graduate nurse of the Veterans Administration Hospital was admitted to the hospital on May 18, 1950 with a three day history of malaise, anorexia, fatigue, afternoon fever, and soreness on palpation of the neck. There had been no cough, sputum, hemoptysis or other symptoms referable to the chest.

The patient served in the ETO and was hospitalized for a two week period in 1944 with fever of unknown cause and, although she was sick for only three days at that time, she was held in the hospital for two weeks no definite diagnosis being established. As a child, she had bilateral otitis media having opening of both drums; perforation of the left drum has persisted. The patient had a tonsillectomy and has had rare attacks of sore throat since then. She had a routine chest examination by X-ray which was negative four months before admission. There has never been a cough at any time.

Physical examination on admission showed slight enlargement of the anterior cervical chains bilaterally, and of the right post auricular and left posterior cervical nodes; all of these were freely movable, firm, and slightly tender. There was no generalized lymphatic enlargement. The remainder of the examination was not remarkable. The temperature was normal on admission, but she ran a relapsing temperature of fever up to as high as 102° over the next three to four weeks.

\*Read before the Tennessee Academy of Ophthalmology and Otolaryngology, Nashville, April 9, 1951.



On admission, X-rays of the chest were reported as showing slight prominence of each root shadow and slight evidence of adjacent fibrosis. There were fibrotic strands in the left first anterior interspace. These changes had been previously observed. No significance could be attached to them. Two weeks later, another chest film was reported as having small calcifications at the hili with clear lung fields. Two weeks later, there was no change in the chest picture.

The laboratory studies on admission showed the WBC was 3,150 with 40% lymphocytes and 54% neutrophils. Four days later, the WBC was 6,300 with 52% lymphocytes and 46% neutrophils. Various agglutination tests were negative.

Four days after admission, anterior cervical nodes bilaterally became more prominent and tender. Later these nodes became fused and matted together. On June 23, 1950, about one month after admission, a biopsy of one of the left cervical nodes was done which revealed a typical histological picture of tuberculosis; acid fast bacilli were found in the section. Consequently, on June 27, 1950, the patient was placed on streptomycin 1 Gm. daily. On July 5, 1950, under general anesthesia, the patient had a dissection of the right deep and superficial cervical nodes with an uncomplicated postoperative course. On July 20, 1950, a similar procedure was done on the left side with also an uncomplicated course.

On July 27, 1950, a small adenoid mass was noted in the nasopharynx and a biopsy was taken. This proved to be tuberculous, the section containing several confluent tubercles with central necrosis; no acid fast bacilli were seen. Consequently, on August 4, 1950, as much as possible of the adenoid and lymphoid tissue of the nasopharynx was removed. A small tonsillar tag was also removed from the right fossa. The adenoid tissue contained numerous tubercles with central necrosis. The tonsillar tag was negative. During all these procedures, the patient had continued on streptomycin. The patient had an uneventful recovery.

Since then the patient has been followed. On September 7, 1950, a small tag of tissue was noted in the left Rosenmuller's fossa which was removed for examination. This tissue also contained tubercles, but in the pathological report it was noted that the tuberculous process had diminished in activity as compared to previous sections. The patient has had an uneventful recovery without evidence of activity elsewhere in the body.

### Conclusion

A case report of primary tuberculosis of the adenoids with cervical node involvement bilateral in an adult was given.

Review of the literature shows that very few observers have reported cases of primary tuberculosis of the adenoids. The literature more or less concludes that tuberculosis of the adenoids and tonsils with

cervical node involvement in children has a good prognosis providing there is no other involvement. However, in adults there is frequently involvement of the lungs when the adenoids tissue or tonsils are involved.

So far as can be determined, the case reported has no activity elsewhere and she has had an uneventful recovery.

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### Discussion

W. S. KENNON, JR., M.D. (Nashville): It is a good thing, I believe, to be reminded occasionally that tuberculosis is not the exclusive property of the lung. I must admit that I have never considered the possibility of tuberculosis when seeing a patient with enlarged tonsils and adenoids and cervical adenopathy. After hearing Dr. Bryan's review of the literature and the account of his patient, I know that I will have a higher "index of suspicion" in the future.

Dr. Bryan quotes Crowe as finding tubercles in 2.5% of 1000 adenoidectomies in 1924. I wonder what the incidence is today when we have a much improved milk supply? Many of us perform tonsillectomies and adenoidectomies without pathological examination of the tissue removed. Should all of this tissue be examined? In the event that tuberculosis is found in the lymphoid tissue of a child's nasopharynx, what further investigation of that child should be carried out? I am asking these questions in the hope that I can get some information on the subject. Dr. Bryan says that his patient was treated with 1.0 gram of streptomycin daily, beginning June 27, 1950. On September 7, 1950, a biopsy of tissue removed from Rosenmuller's fossa still contained tubercles. No mention is made of treatment after this date. I would like to ask Dr. Bryan if further streptomycin was given. I would also like to raise the question of what constitutes adequate streptomycin therapy for tuberculosis in this region. In a recent article in the *Archives of Otolaryngology*, concerning the treatment of tuberculosis of the larynx, it was concluded that 1.0 gram of streptomycin daily for 90 days was probably the best plan of treatment.

I enjoyed Dr. Bryan's report, and I want to thank him for the opportunity of discussing it.

## METHODIST HOSPITAL CLINICO-PATHOLOGICAL CONFERENCE, MEMPHIS, TENN.

An 80 year old white retired railroad section foreman was admitted to the hospital on November 27, 1950, complaining of rectal hemorrhage which began three years before.

Hemorrhoids had been present for an unknown length of time. Episodes of rectal bleeding occurred from time to time beginning three years ago. They became severe five weeks ago. Since then he had had dizzy spells, some of which caused him to fall while walking. The blood in the stools was described as dark but not tarry. The patient had always been constipated. There were no changes in the bowel habits. His right leg was removed ten years ago for "chronic granuloma and gangrene."

He was a senile male who appeared chronically ill. The temperature was 99.8, pulse 68, respirations 18. The head, neck and chest were considered normal. There was a fixed mass at the left brim of the pelvis, extending toward the midline. A second examiner thought the mass was in the lower abdomen and extended to the right and to the left of the midline, being more prominent on the left side. Moderate tenderness was elicited in the right subcostal region. External genitalia were negative. The prostate gland was enlarged to three times normal size. It was not nodular. The right leg had been amputated in the region of the mid-thigh. There was slight angulation of the left femur at the site of an old fracture. No lymph nodes were felt. There was a minimal tremor of the hands at rest, moderate impairment of hearing.

Laboratory: November 27, 1950, RBC 1,860,000, hemoglobin 5.5 Gm. (36.6%), WBC, 12,350 with 67% segmenters, 14% bands, 2% metamyelocytes, 12% lymphocytes, and 6% monocytes. On November 29, 1950, following four transfusions, the RBC numbered 2,520,000, hemoglobin 6.7 Gm. (45%), WBC, 11,000. Two weeks later, the RBC numbered 3,370,000, hemoglobin 10.5 Gm. (70%), WBC, 40,000. No transfusions had been given. Blood Kahn and Kline tests were negative. On November 27, 1950, the urine was bloody, had a neutral reaction, was insufficient for determination of specific gravity, albumin 1 plus, sugar negative, occasional WBC, and loaded with RBC. The NPN one week after admission was 151 mg. per cent; 8 days later the NPN had fallen to 132 mg. per cent. Two weeks after admission the NPN was 68.3 mg. per cent; 3 days after this, it rose again to 174 mg. per cent. Three weeks after admission, the NPN was 249 mg. per cent.

X-ray studies: On November 27, 1950, a film of the abdomen showed a fairly large mass in the right flank, which was shaped somewhat like the kidney. A barium enema on December 1, 1950 showed considerable feces in the rectum and the barium narrowed to a point at the recto-sigmoid junction without filling beyond this. On Decem-

ber 5, 1950, a cystogram showed dilatation of the bladder and multiple diverticula of the bladder. An intravenous pyelogram on December 5, 1950 showed an enlarged right kidney, suggesting hydronephrosis. A gastro-intestinal series on December 7, 1950, revealed hypertrophy of the left ventricle of the heart, and uncoiling of the aorta. The duodenal cap was deformed, said to be due to prolapsed gastric mucosa. There was a diverticulum in the third portion of the duodenum. Multiple diverticula were found in the small bowel. A portable film of the chest, on December 15, 1950, showed both lung fields equally aerated. The aorta was moderately enlarged.

A cystoscopic examination showed the prostate to be so markedly enlarged that it was impossible to visualize the orifices of either of the ureters.

Course in hospital: On the 18th hospital day the patient's temperature became elevated. It had varied around normal previous to this. Penicillin and streptomycin were started. On the 17th and 18th days, the urinary output had been 1,000 cc.; on the 19th day this fell to 800 cc. At that time, the CO<sub>2</sub> combining power was 11.2 volumes per cent. Rales were heard in the chest. On the 22nd day, the patient appeared improved in the morning, having a slower pulse and respiration and fewer rales. In the evening, the temperature, pulse and respirations rose sharply from near normal to 101.6, 90 and 24 respectively. On the 23rd day the temperature, pulse, and respirations continued to rise, being recorded at 103.2, 102 and 28 respectively. On the 24th day, the temperature, pulse and respiration rose to 105.2, 98 and 40 respectively. By mid-afternoon he became comatose and the temperature had risen to 107°. He became extremely dyspneic and cyanotic. He expired on December 20, 1950, his 24th hospital day.

DR. BURT FRIEDMAN: Dr. Mabry, will you review the X-ray findings please?

DR. EDWARD MABRY: The first examination which we did was on November 27, 1950, a KUB film. We cannot see the mass described clinically in the left lower quadrant. We notice a large mass in the right flank which has the configuration of a kidney. The left kidney cannot be definitely seen and on this basis we recommended retrograde examination of the genito-urinary tract. The next examination was an attempted barium enema. Due to the patient's age and lack of cooperation we were unable to study his colon. You can see the rectal bulb dilated tremendously and it is filled with feces. That's as far as we can go. We think this was not due to obstruction but to failure of cooperation plus a large amount of feces. So cleansing was



recommended and the patient was to return for another barium enema. The next examination was an intravenous pyelogram which failed to show any outline of the collecting system of the kidneys on either side. The previously described large mass in the region of the right kidney can be seen in the 5 minute, 15 minute and 30 minute films. Intravenous pyelography was unsatisfactory and again a retrograde pyelogram was recommended mainly to study the right kidney. The next examination is a cystogram which shows a kidney that is slightly larger than normal and multiple diverticula in all parts of the bladder. There was no regurgitation into either ureter from this study. There was quite a space, as you see, from the bottom of the bladder down to here, an elongation of the posterior urethra, which we think is due to hypertrophy of the prostate. Next we did an upper gastrointestinal examination and found nothing of any significance. There was fairly normal transit time to the colon. This is not satisfactory for studying the colon. However, there is no definite obstruction. In summary, we have a patient in whom studies of the colon were unsatisfactory. There was a large mass in the right flank and dilatation of the bladder with multiple diverticula. The upper gastro-intestinal tract was within normal limits.

DR. FRIEDMAN: Thank you, Dr. Mabry. In short then, this is an 80 year old white male who has apparent genito-urinary disease as shown by abnormal urine and abnormal blood chemistry. In addition, there is the presenting symptom of rectal bleeding over a period of some years, associated with marked anemia. In a period of three weeks he ran his hospital course and expired. Dr. Boone, will you open the discussion, please?

DR. HOWARD A. BOONE: I'd like to inquire about one point before proceeding. What was the status of his nutrition? Was he cachectic? Did he show any evidence of great loss of weight?

DR. FRANK T. RUTHERFORD, JR.: The man was chronically ill. There was no mention of cachexia.

DR. BOONE: This man has a multiplicity of things wrong with him. If they all came

from one etiology, as they usually do in these conferences, it is going to be a little difficult for me to tie it down. For one thing, we know that he must have had a profound loss of blood. From his history, it seems most likely that it was from the rectum. Now there may have been some other factors, such as depression of the bone marrow that might have been acting to produce this profound anemia. I think the anemia explains his dizzy spells and fainting when he walked. He has generalized diverticulosis it seems, has it throughout the bowel although we don't know whether or not it was present in the large bowel. None was demonstrated on the 24 hour film. He has marked diverticulosis of the bladder. The mass in the region of the right kidney is a little difficult for me to make out. Was it a tender mass? There is no mention of pain resulting from pressure on it. Did any of you see him?

DOCTOR IN AUDIENCE: It was not a tender mass.

DR. BOONE: Did it feel like tissue or like something else?

DOCTOR IN AUDIENCE: We thought it was a fairly firm mass.

DR. BOONE: I don't know whether that is a tissue mass or whether it might be an abscess. This patient had a considerable leukocytosis even on admission and the white blood cells rose considerably during his hospitalization. So this mass may have been, it seems to me, an abscess which was most likely associated with rupture of one of his diverticula. He had a large prostate. There is no mention of residual urine and no statement concerning difficulty in voiding. If the ureters could not be catheterized because the prostate was large, it seems to me he ought to have had trouble voiding. So it is possible that he could have had urinary retention, a dilated bladder and perforation of one of the diverticula, resulting in an abscess in the pelvis or just above the pelvis. This would explain the mass, also possibly the genito-urinary findings, that is bilateral hydronephrosis with very little kidney function and almost no function on the left, as exhibited by the intravenous pyelogram and a high NPN. At first I thought the high NPN might have been on

the basis of his blood loss and anemia. I discard the lower bowel as the etiology of this man's trouble in view of the X-ray reports. I would say that the bleeding is most easily explained on the basis of hemorrhoids associated with uremia. I think, then, the mass in the belly contributed to the anemia by causing considerable venous stasis in the pelvis. The best point to start with in this man, is his bladder. I believe he had diverticulosis which perforated and caused an abscess in the lower abdomen and pelvis. This was the cause of the mass. Then, it appears that the enlarged prostate, in combination with the abscess, resulted in pyelonephritis leading to uremia. The profound uremia contributed to further bleeding, as it often does, and perhaps depression of the bone marrow. There is one finding here that I couldn't fit in with the rest of the case. The  $\text{CO}_2$  that was reported as 11.2 vols. per cent. Your lab couldn't be in error, could it, Dr. Tribby?

DR. TRIBBY: No sir!

DR. BOONE: That's considerable acidosis. Some patients, diabetics in particular, get down that low, but that's an awfully low  $\text{CO}_2$ . I don't know exactly what this patient's general status was. He showed plentiful signs of acidosis, but I think he'd have been comatose with such a  $\text{CO}_2$  as that. There's one other thing that's rather interesting. His red blood count came up in the second week, without any additional transfusions. I don't think he had enough transfusions to give that rise so he evidently built up some blood. Of course, he wasn't losing any more blood as he was when he came in. Therefore, he had pretty good function of the bone marrow. In summary, my opinion is that his trouble started in the bladder and prostate and ended up in demise from kidney failure and blood loss.

DR. FRIEDMAN: Thank you, Dr. Boone. There is mention made by the roentgenologist to the effect that the patient had prolapse of the gastric mucosa. Dr. Aste, would you comment on that particular point? Do you feel that the prolapse of the gastric mucosa, not particularly in this patient but in any patient, could cause sufficient bleeding to reduce the hemogram to

this low level? Any other comment you would like to make will be welcome.

DR. MALCOLM ASTE: I haven't had sufficient experience with that particular condition to offer a reliable opinion. I haven't had occasion to deal with this in my own practice from a surgical viewpoint. I would say, with the little knowledge I have, that prolapse of the gastric mucosa would not have enough significance to account for his marked anemia. There are several red herrings in this particular protocol, as far as the mass is concerned. We have a rectal examination but no description of the examination concerning anything other than the enlarged prostate. What about the bladder? My first impression is that an aged man who is bleeding from the rectum, will most likely have an obstructing lesion of the bowel, probably a carcinoma. But attention is shifted to a process which involves chiefly the kidney, because we don't have enough description to localize this particular mass and to know what the source of it is. Dr. Boone suggests that it is an abscess. The man was afebrile, I believe, when he entered the hospital, and there was no leukocytosis at that time. Dr. Boone pointed out, one should try to make all the information fit into one diagnosis, as our teachers told us years ago. It is a little difficult to do in this case.

DR. WM. W. TRIBBY: Don't you think a white blood count of 12,350 on admission is pretty high, especially with 81% granulocytes?

DR. ASTE: With an anemia such as he had, that does represent a leukocytosis and a shift to the left. There is only one description of his having bloody urine and there is no history of the urine being bloody. We have no further description and no observation of the character of the stools in the hospital. We just have a more or less vague history and no indication of any alteration in the bowel habits of this man. There was no obstruction of the colon from the X-ray viewpoint, no dilatation of the bowel above the rectum and I understand a sigmoidoscopic examination was negative. He could be definitely losing blood from the urinary tract. The hydronephrosis could be the cause of bleeding. Polycystic kidneys



could cause bleeding but I think a man with this condition would not live this long. He certainly could have bled anywhere along the urinary tract, from the large kidneys or from the diverticula in the bladder. The diverticula could rupture and cause an abscess in the pelvis. He also could have diverticula of the large bowel with inflammation resulting in an abscess from that source. He also could have blood in the stools from diverticula in the colon. He had a very profound azotemia. I believe this was the cause of his death.

DR. FRIEDMAN: In regard to the urinalysis that was done two days after he was admitted, I notice that there were many more red cells in the urine than white cells, the white cells being described as occasional. If the diagnosis of pyelonephritis is entertained, would not one expect the urine to contain many white cells rather than so many red cells? Dr. McKenzie, would you care to continue the discussion?

DR. EUGENE E. McKENZIE: This is an 80 year old man with a mass in the right flank. He had apparently passed blood from the rectum for years. I think we would be going pretty far to think that he had a malignancy of the colon that had been present for this long a time, especially in face of a negative proctoscopic examination at the present time, and a fairly negative X-ray examination. He could have a polyp in the colon that caused the bleeding. But, some of the most severe anemias that I have seen have been caused from chronic blood loss due to hemorrhoids. Not a great deal of blood need be lost at one time; just a small amount at a time will cause severe anemia if continued long enough. The location of the mass in the abdominal cavity is uncertain in my mind. It is described in more than one place. I think it was probably an abscess, even though it wasn't tender. Sometimes, in elderly people, even appendiceal abscesses are not tender and do not cause fever. I have known them to go for several days without fever. It is possible that he has an appendiceal abscess, causing the mass. The anemia was at least partly due to bleeding from hemorrhoids. He has a large prostate. The blood chemistry indicates poor function of his kidneys.

We must decide whether this is due to prostatic obstruction or to disease primarily in the kidneys. If it was due to prostatic obstruction I believe the diodrast would have regurgitated into the ureters. However, his prostate may have been so embedded that the ureteral orifices were not open. No function of the kidneys was demonstrated by intravenous pyelography. He had blood in the urine, no pus. This leads me to think that he has acute nephritis.

DR. TRIBBY: May I interrupt you for a minute? From reading what Dr. Arean wrote about this history, I have the impression that the blood in the urine followed an attempted retrograde cystogram. I attributed the blood in the urine to that.

DR. McKENZIE: Well, that makes a different story. I was thinking of acute nephritis secondary to an abscess in the abdominal cavity, which might have resulted from a ruptured appendix. I don't believe he has a malignancy. Concerning Dr. Friedman's question about prolapse of the gastric mucosa as a possible cause of severe hemorrhage. It has been the cause of bleeding on numerous occasions. I have seen one patient who was practically exsanguinated by upper gastro-intestinal bleeding. Prolapse of the gastric mucosa was the only thing that was found to account for the hemorrhage. There have been numerous reports in the literature of bleeding from prolapse of the gastric mucosa. This man's anemia was probably made worse by the accompanying uremia. We know that uremic patients may become anemic from no other cause.

DR. FRIEDMAN: Thank you, Dr. McKenzie. Dr. Brockman, will you add some comments before we let the pathologist talk about it?

DR. JAMES M. BROCKMAN: Well, I don't know why a gynecologist should be talking about men. I think Dr. Tribby would not have given us this case unless there was a catch in it somewhere. Yet, I wouldn't put it past him to try to throw a real easy one over sometime. This presents an interesting picture to me. I think the man died of pneumonia, terminal pneumonia. This is evidenced by cyanosis.

dyspnea and the fact that he had to have tracheal suction. Some of the urine reports seem to indicate chronic glomerulonephritis in the end stage. This would account for the uremic signs, which are not too severe. We've all seen people with an NPN as high as this for a much longer time. He probably had it quite some time before he entered the hospital. I feel that he had a chronic uremia. His first urinalysis showed blood. I wonder if the mass in the region of the kidney might be some type of kidney tumor. A hypernephroma, I believe, will sometimes cause blood in the urine and present a picture otherwise similar to this. Dr. McKenzie is right in regard to possible exsanguination by bleeding hemorrhoids. Over a period of years, they could cause anemia such as this man had. Furthermore, I believe the increased white blood cell counts could be due to chronic uremia.

DR. FRIEDMAN: Unless anyone has something special to tell us about, I'll turn it over to Dr. Tribby.

DR. ALMA B. RICHARDS: Did the patient have any more blood in his stools or did he have any more stools after he entered the hospital?

DR. FRIEDMAN: I would assume that if he had passed any considerable quantity of blood in his stools, after hospitalization, it would have been mentioned in the protocol. So, I would answer that question by saying that blood in the stools was not a prominent feature of the hospital course.

DR. TRIBBY: The diagnoses are as follows, arranged in their approximate order of importance:

- Acute pyelonephritis with multiple abscesses, bilateral
- Retention cysts of both kidneys
- Benign prostatic hypertrophy
- Chronic cystitis
- Chronic ureteritis
- Hypertrophy of the bladder
- Diverticulosis of the bladder
- External and internal hemorrhoids
- Healed tuberculosis of mediastinal lymph nodes and spleen with calcification
- Diverticulum of the duodenum
- Varicosities of the esophagus
- Generalized mild arteriosclerosis
- The primary cause of death was acute

pyelonephritis. I believe he did not live very long, after his NPN went over 200 mg. %, because the uremia developed rapidly and was not, therefore, well tolerated. The mass in the right side of the abdomen was a large retention cyst in the lower pole of the right kidney. This measured 15 cm. in diameter and contained about 600 cc. of straw colored fluid. The first photomicrograph shows collections of pus in the tubules of the kidney (Figure 1.) In some

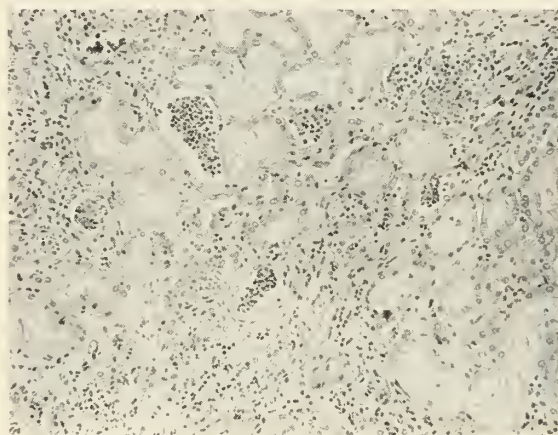


Figure 1. Photomicrograph of kidney showing pus and bacteria in tubules, necrosis of tubular epithelium and diffuse interstitial infiltration of leukocytes. Hematoxylin and eosin stain, 100 X.

places, destruction of the epithelium of the tubules can be seen. There is also diffuse interstitial infiltration by granulocytes. These masses collected in the tubular lumens are not all pus cells. They are pus cells mixed with bacteria, which can be seen in the higher magnification (Figure 2). The

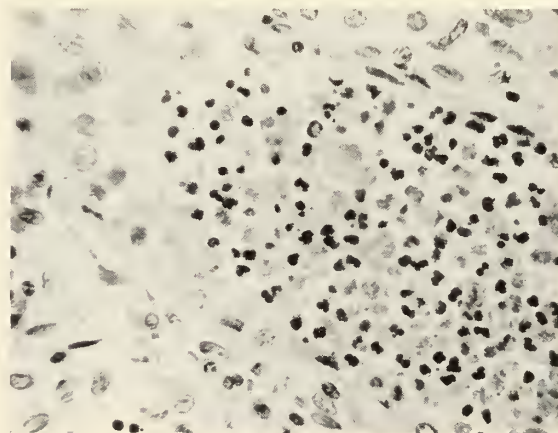


Figure 2. Kidney tubule filled with pus and bacteria; shows necrosis of tubular epithelium. Hematoxylin and eosin stain, 400 X.



bluish red masses are the bacteria. Destruction of the epithelium of a tubule is well illustrated in this photograph. The next slide is a photomicrograph of the lining of one of the retention cysts. Notice that the lining is composed of greatly compressed tubular epithelium. It is a true retention cyst. I believe the hemorrhoids probably accounted for the patient's anemia, as emphasized by Dr. McKenzie. There was no rupture of any of the diverticula of the bladder. The esophageal varices did not bleed. The lungs were slightly heavier than normal but, strangely no pneumonia, only congestion, was found. There was no

hydronephrosis or hydroureter. It is possible that the hypertrophy of the walls of the bladder prevented the appearance of hydronephrosis. At any rate, urinary retention was not an important consideration in his illness. Apparently, prostatic hypertrophy was compensated in the bladder by a hypertrophic response on the part of the bladder wall.

DR. BOONE: Do you consider urinary obstruction necessary for the development of acute pyelonephritis?

DR. TRIBBY: No sir. I am sure it can occur without obstruction. It can be blood-borne, as it must have been in this case.

# President's Message

## *We Cannot Live Alone*



DR. KELLY

The last session of the Tennessee General Assembly gave us several valuable lessons on how legislation is originated, who sponsors it, who opposes it, and why.

One particular bill proposed in the last session spotlighted a situation which should teach us a lesson in public relations. The story behind this bill has not been fully told to every member of the Association. Therefore, this message will be devoted to a retelling of that story.

The measure was Senate Bill No. 299. It sought to repeal Sections 9807 and 9810 of the Tennessee Code which now exempt physicians from penalties for non-attendance when summoned by subpoena to appear in court in civil cases. There is no exemption in criminal cases.

The sponsor of the bill explained that he introduced it as a personal favor to some of his lawyer friends who resented the abuse that a *few* doctors had exercised under the present exemption. The bill was endorsed by the Legislative Committee of the Tennessee State Bar Association.

The Legislative Committee of our Association delved into the background of the bill and learned that it was true that a *few* doctors had taken advantage of the exemption by not cooperating with lawyers when they sought written depositions in doctors' offices.

The endorsement by the Legislative Committee of the Bar Association should serve as a warning that unless we physicians as a whole become more sensitive to our responsibilities and more appreciative of our privileges, we are going to find ourselves without either.

It is lamentable that a few men, through selfishness or thoughtlessness, can bring

restraint and discredit to the entire medical profession.

The physician is a busy man, and he is for the most part an honest, upright and considerate individual, but occasionally he becomes so absorbed in his work or himself that he may forget that the lawyer, who waits with his colleague and court stenographer in the outer office, has a job to do also, and considers his time as valuable as the man for whom he waits.

It was never the intent of the law-makers that the physicians should have "class legislation" or "special privilege legislation," but it was thought that to haul doctors into court where they might be detained all day would not be to the best interest of the community. We agree. But there are times when the testimony of a physician either as an individual or as an expert witness, is necessary so that justice might prevail. Doctors must be willing to make that contribution. They also must be willing to ferret out and take militant action against that small group of individuals who are unwilling to do their part, in order that the whole will not be tarnished by the acts of a few.

The Legislative Committee of the Bar Association withdrew its support of the exemption bill. Many legislators throughout the state were concerned that the measure might pass and then penalize many for the acts of the few.

Let us hope that there will not be an occasion for a bill of this kind to come up in the future.

If this story has a moral, it probably is, that we cannot live alone in the professional world. We must cooperate with members of other professions if we want from them a full measure of cooperation and respect.

*Ernest S. Kelly*



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JULY, 1951

## EDITORIAL

### CHOLESTEROL AND "G" MOLECULES

*The editorial comment upon cholesterol and its relationship to atherosclerosis by a member of the Committee on Scientific Work will be found to be timely.—Editor.*

The relationship of dietary cholesterol to the development of atherosclerosis is becoming more clearly elucidated. Atherosclerosis had been thought previously to be an inevitable manifestation of old age but it has been shown to be reversible in the experimental animal. In an attempt to carry over the results achieved in animals to humans many physicians have enthusiastically prescribed low cholesterol diets for their patients.

As we try to bring together the many varied fragments of information on this subject in order to formulate a more rational approach to the problem of atherosclerosis for the practicing physician, we should consider the results of work presented by Ancel Keys at the recent A.M.A. convention. In clinically normal persons the serum cholesterol levels ranged, independent of dietary variations, from 200 to 800 mg. per

cent of cholesterol daily. (Normal diets contain approximately 1600 mg. of cholesterol and the content of low cholesterol diets varies from 100-270 mg.) Enormous intakes did however slowly produce hypercholesterolemia. Diets free of cholesterol and fat produced marked declines, proportional to initial levels, in the blood while cholesterol free diets containing the usual fats caused trivial changes. Animal and vegetable fats were equivalent. Very low fat diets with 500 mg. of cholesterol daily produced marked declines in serum cholesterol.

Recently many physicians in this state and elsewhere have received announcements that a laboratory in California is prepared to test specimens of serum for Gofman, "G" or emulsified fat globules which are the Sf 10-20 aggregates. Keys showed that serum concentrations of total cholesterol and "G" molecules are correlated and both are related to the development of atherosclerosis. He believes that total cholesterol determinations are equal to, or better than "G" aggregates in differentiating serums of normal persons and those of patients who have had myocardial infarction. Combining "G" and total cholesterol criteria does not improve the prediction of atherosclerosis from the use of cholesterol determinations alone. He suggested that "G" levels may owe their atherosclerosis predicting value to their relationship to cholesterol levels.

It would seem at the present state of our knowledge that low fat diets are justified in the treatment of atherosclerosis. The actual cholesterol content of the diet, according to Keys work, is probably not too significant. Until further studies are reported it would seem that there is as close a correlation between serum cholesterol values and infarcts as there is between "G" values and infarcts. Obtaining a serum cholesterol level is much less expensive.

ADDISON SCOVILLE, JR.

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### INCREASED MEMBERSHIP DUES HELP TO FINANCE POSTGRADUATE EDUCATION

One of the most outstanding activities of the Tennessee State Medical Association has

been its interest in post-graduate instruction for its membership. The idea was conceived in 1936 by the Committee on Education. With the generous contributions of \$12,000 annually from the Commonwealth Fund such post-graduate teaching became possible. The Tennessee State Medical Association and the Tennessee Department of Public Health each contributed \$1,500 annually; Vanderbilt University and the University of Tennessee each contributed \$500 per year.

With this financial support the Tennessee State Medical Association has sponsored two-year "circuit" courses in Obstetrics, Pediatrics, Internal Medicine, Surgical Diagnosis, Gynecology, Cancer and Psychiatry. Total registrations to date for these courses have been 8502 physicians. Thousands of lay personnel in medical fields have attended the lectures.

Several years ago the Commonwealth Fund reduced its support and the difference was made up by an increased contribution from the Tennessee Department of Public Health and Tennessee State Medical Association, namely \$12,500 and \$3,000 annually. Tuition fees were increased also.

With the current course in Psychiatry, the contributions by the Commonwealth Fund will cease. This announcement in the House of Delegates, at the 1951 session of the Association, led to a spirited discussion concerning the value of this form of post-graduate instruction and means of continuing it. The unanimity of opinion concerning the desirability and need of continuing this activity of the Association was most heartening. The only differences of thinking which showed themselves had to do with the financing of the post-graduate teaching. Finally, the House of Delegates resolved and passed a motion to the effect that the Board of Trustees appropriate \$20,000 for the period of the next two years to take over from the Commonwealth Fund the major financial underwriting of the next post-graduate course.

It is indeed most fortunate that membership dues to the Tennessee State Medical Association had been raised in anticipation of the initiation and extension of its Public Service Program. This provides the financial leeway to meet the costs of post-gradu-

ate education. By rigid budgetary economies the Board of Trustees was able to set aside the additional \$7,000 annually required under the action of the House of Delegates. THE TENNESSEE TEN for Public Service has as its objective the betterment of the relationships between profession and public. After all, the provision of good medical service is one of the fundamentals in such a program. Making the doctor a better doctor through post-graduate instruction is fulfilling one of the objectives of the Public Service Program.

Your editor has heard expressions from members to the effect that the increased dues now met with their approval, some doubt having been present in their minds before this. Surely, the use of a portion of the money collected in the increased dues for post-graduate instruction can have only the hearty approval of all members of the Association. This will go a long way to dispel the questions raised in some quarters concerning the propriety of a raise in membership dues.

R. H. K.



#### COST OF MEDICAL CARE AND INCREASE IN COST OF LIVING

The Bureau of Labor Statistics reports that the cost of medical care rose only 2.3 per cent between June and December, 1951, while general living costs rose 5.1 per cent. A breakdown of medical care costs for the same six-month period showed the following increases for specific medical care services:

General Practitioner's Fees	1.1%
Surgeon's and Specialist's Fees	1.2%
Drugs	2.5%
Hospital Services	4.9%

Exhaustive studies of medical care costs by the AMA Bureau of Medical Economics further substantiate the fact that physicians are getting a continually smaller share of the consumer dollar.

Physicians should make it clear to patients and friends that doctor bills are one of the few items in their budget not playing havoc with it. Further, it should be pointed out that the slight increase in the Nation's medical care costs should be charged to



increases in drug and hospital bills over which the physician has little or no control.

While inflation and generally increased costs of living are a burden to your patients, why not give them the facts about the reverse trend in the cost of good medical care? With physicians getting less and less of the consumer dollar and rendering continuously better care, and with voluntary, prepaid insurance taking the economic shock out of expensive illness, the medical profession is making an important contribution to the economic stability of their patients, although against great odds.

Let the major responsibility for inflation and higher living costs rest where it belongs. It is *not* on the shoulders of physicians.

V. O. F.



## WHAT'S NEW IN MEDICINE

### Fluorescein in the Localization of Brain Tumors

The dye fluorescein shows fluorescence when viewed under ultraviolet light. Normally it is excreted from the body via the kidneys and biliary tract, being excreted in about 12 hours. In doses used in the body it is non-toxic. It has been used experimentally in medicine for a decade for such studies as in circulation time, vascular diseases of limbs and viability of a strangulated bowel at operation.

Moore of the University of Minnesota had found that certain tumors, especially those of glial and meningeal origin, retain the dye long after the dye had left other tissues. He found that if the dye had been injected 2 hours before operation, if the brain at operation was exposed to ultraviolet light, superficial lesions were readily visible. He suggested that diiodofluorescein made with radioactive  $I^{131}$  might be useful in localizing tumors with a Geiger counter.

Svien and Johnson (Proc. Staff Meet., Mayo Clin., 26:142, 1951) summarize their use of fluorescein in neurosurgery. They point out that the retention of dye is not a

function of malignancy but rather the cellularity of a tumor, whether the cells are malignant or not. The dye is helpful in localizing superficial tumors and may be of assistance in hospitals where the immediate examination of frozen sections by a neuropathologist is not available. Fluorescence does indicate a pathologic process.

In their study of localizing tumors before operation through the medium of the radioactive diiodofluorescein and a Geiger counter, they found such localization limited to about 50 per cent of tumors, and of these 40 per cent were localized accurately enough to be of use to the neurosurgeon. Tumors smaller than 3 cm. in diameter and those of the posterior fossa and parasellar region are difficult of localization.



### Chloromycetin in the Treatment of Syphilis

In 1949 the authors reported that chloromycetin orally cleared *T. pallidum* from primary and secondary lesions in 22 to 28 hours. They now report on the clinical and serologic evaluation of patients so treated. The antibiotic was given in 6 daily doses (at four-hour intervals) on a basis of milligrams per kilogram of body weight. Romansky, Olansky, Toggart, Landman and Robin (Am. J. Syph., Gonorr. & Ven. Dis., 35:234, 1951) report on 103 cases followed for 5 to 6 months post-treatment.

Primary and secondary syphilis in 79 patients was treated with 30 and 60 mg. kg. daily for 4 to 8 days. Seronegativity has been attained in from 30 to 86 per cent. Highest percentage of seronegativity occurred in patients treated with 60 mg. kg. daily for 8 days. Eleven cases of early latency have shown improving serologic response though none have become negative. Three patients having late cutaneous syphilis were treated each for 15 days 60 mg. kg. per day. All healed though one had a recurrence two months later. Five patients having neurosyphilis were treated—1 early parietic, 1 tabetic having lightning pains, 1 having optic atrophy and 2 having acute meningo-vascular syphilis. The latter two and the parietic had a normal cell count at

the end of 15 days' treatment. Protein, serology and colloidal gold test reactions showed no change. Six of the early cases appeared in pregnant women. Three infants were seronegative and one doubtful. One infant born prematurely on the fourth day of treatment had a titer of 1:256 dils at birth which dropped to 8 dils at a month, but developed a secondary relapse at the second month.

*(The only way the physician has of being certain that an antibiotic is being taken, is to deposit it himself in the patient's muscle. Complications of inadequate treatment of syphilis are too serious to have antisypilitic treatment subjected to the vagaries of oral administration.—Editor.)*



### Simultaneous Increased Resistance of Bacteria to Aureomycin and Terramycin

Fusillo and Romansky (Antibiotics and Chemotherapy, 1:107, 1951) report that bacteria may develop an increased resistance simultaneously to these two antibiotics upon exposure to either one of them. This was found by chance in studying the bacterial spectrum for terramycin. A strain of *Aerobacter aerogenes* was resistant. This was an organism isolated from a patient who had received 500 mg. of aureomycin every 6 hours for 5 days and had become resistant to that antibiotic. Other organisms from persons having received aureomycin were then found resistant to terramycin.

Organisms sensitive to the antibiotics were also grown in vitro in a medium containing aureomycin and then also showed resistance to terramycin. The same experiment was also carried out in reverse.

The authors demonstrated 11 strains of organisms, from urinary tract infections from patients having been treated with aureomycin, to be resistant to both aureomycin and terramycin. Furthermore, 12 strains of organisms developed in vitro resistance to aureomycin and were then found to be resistant to terramycin. Ten strains becoming resistant to terramycin in vitro also became resistant to aureomycin. The organisms were strains of *A. aerogenes*, *Esch. coli*, *S. fecalis*, and *Staph. aureus*.

### Adenosine-5-monophosphate in the Treatment of Pruritis

The use of this substance as an effective agent in the treatment of pruritis has been reported in the last couple of years. Susinno (Am. Pract., 2:491, 1951) reports upon its use in more than 200 patients followed for from 17 to 24 months. He has selected 66 severe cases for reporting because they had especially severe pruritis and were intractable to other means of treatment, thereby reducing psychic effects. Treatment was either by injections intramuscularly or by tablets sublingually. Most received the latter form for 3 or 5 days.

Good response was considered to be true only if a "75 per cent" amelioration occurred within 3 days or less. Re-medication was postponed as long as possible to permit spontaneous remissions. Re-treatment varied after intervals of 5 to 19 days. In 57.6 per cent dramatic relief occurred, with the drug pruritis disappearing in from 12-48 hours and with rapid relief of accompanying edema, ulceration, scratch-marks and "eczema." Those with edema had diuresis losing 5 to 15 pounds.

The results were equivocal in 9.1 per cent because the relief was not dramatic or recurrences did not appear for re-evaluation. Twenty-two patients or 33.3 per cent represented failures.

The most favorable cases were instances of varicose ulcers, diabetes, pregnancy and post-partum pruritis, and pruritis scroti. One patient with Hodgkin's disease had dramatic relief on four occasions. Some suffering from pruritis vulvae, pruritis ani and "contact dermatitis" responded and others did not. No favorable results were obtained in cases of neurodermatitis, psoriasis, or senile pruritis.

The reason for the effectiveness of the drug is unknown. Toxic symptoms, dizziness, headache, diarrhea and chills occurred in 14 per cent.



### Antigen-antibody Mechanism in Rheumatic Diseases

Brown and associates (Am. J. M. Sc., 221:618, 1951) suggest that the collagen



diseases and especially rheumatoid arthritis represent a hypersensitivity response to a living infectious agent. They feel that organisms of the pleuropneumonia group (L organisms) might be such agents. Such organisms have been cultured from joint fluid in Reiter's disease and from the genital tract in patients with rheumatic disease. In vitro studies on L organisms isolated from humans show them sensitive to certain antibiotics — terramycin, chloromycetin, aureomycin and streptomycin as well as to gold salts. Treatment in 150 patients with diseases of the rheumatic group with the first 3 of these antibiotics showed good clinical response in some, followed by relapses with discontinuance of treatment. Others showed exacerbations, severe in some instances. Some of these exacerbations could be controlled by intermittent treatment with small doses of antibiotics.

Since these exacerbations were thought to represent antigen-antibody reactions, cortisone or ACTH should block them. In 15 patients antibiotic tolerance was raised more rapidly by the simultaneous use of the antibiotics.

## DEATHS

### IN MEMORIAM

#### DR. THOMAS A. WHEAT

WHEREAS, on May 9, 1951, death removed from the roll of the Bedford County Medical Society one of its honored members. He was held in the highest esteem by the medical profession of Tennessee and by the people he served so faithfully and well.

Dr. Wheat had a high concept of ethics and honor to his profession and to the people he served.

AND WHEREAS, we believe the immediate family and community in which Dr. Wheat labored have sustained a great loss.

THEREFORE be it resolved, that the Bedford County Medical Society extend sympathy to the bereaved family and friends of the deceased.

RESOLVED FURTHER, that a copy of this resolution be mailed to the family of the deceased and a copy be placed on the

minutes of this society and a copy sent to the JOURNAL of the Tennessee State Medical Association.

BEDFORD COUNTY MEDICAL SOCIETY  
BY T. R. RAY, M.D.

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**Martin Luther Black, M.D.**, Knoxville physician and surgeon for thirty-five years, died May 31, 1951. Dr. Black, a native of Anderson County, was graduated from the Medical College of the University of Tennessee in 1915. He enlisted for service in World War I, serving as First Lieutenant in the Medical Corps. Dr. Black was interested in civic and church affairs and was a member of this Association continuously since 1923. Aged 62.

**Charles Green Andrews, M.D.**, died June 12, 1951. Dr. Andrews was a lifelong citizen of Memphis and received his M.D. degree from the University of Tennessee School of Medicine. During World War II he served as Lieutenant Commander in the Navy, and he was quite active in civic affairs and sports. Dr. Andrews was a fellow of the American College of Surgeons and an active member of organized medicine. Aged 51.

**George P. Jones, M.D.**, died June 7, 1951. Dr. Jones received his M.D. degree from the Medical School of Vanderbilt University in 1904 and practiced in Memphis for nearly thirty years until his retirement in 1937. He was a veteran member of his County Society and the Tennessee State Medical Association. Aged 73.

**Arthur Hubert Hart, M.D.**, retired Memphis physician died June 1, 1951. Dr. Hart was an active sportsman and painter. Aged 87.

**W. E. Galyon, M.D.**, a retired Knoxville Southern Railway surgeon, died May 25, 1951. Dr. Galyon served as a Southern Railway Surgeon for over forty years before his retirement seven years ago. Aged 71.

**J. K. Walters, M.D.**, revered Hawkins County physician, died May 25, 1951. Dr. Walters practiced medicine for 61 years in

his native county. Dr. Walters was a respected county leader and was a Trustee of Carson-Newman College for many years. Aged 86.

**Charles Bickley Walker, M.D.**, prominent Lauderdale County physician, died June 12, 1951. Dr. Walker spent his entire life rendering medical care to the people of his native county. He was a graduate of the Medical School of Vanderbilt University. Aged 92.

## PROGRAMS AND NEWS OF MEDICAL SOCIETIES

### The Knoxville Academy of Medicine

Dr. R. H. Monger, the energetic Secretary of the Academy, reminds his members that the Academy meeting room is air conditioned and a delightful place to be during the hot weather—a clever way of encouraging attendance to excellent programs.

Dr. Carroll H. Long, Johnson City, was scheduled to read a paper to the Knoxville Academy on June 12 entitled "Carcinoma Arising in Fistula-in-Ano."

At the June 26 meeting, Dr. James Kesterson was scheduled to read a paper on "The Technic and Results of a Gastroenterostomy Placed on the Greater Curvature of the Stomach." His paper was to be discussed by Dr. Robert Newman.



### Nashville Academy of Medicine

The Nashville Academy of Medicine, although not having any scientific programs during the summer months, is still hard at work. The major interest now is the Annual Post-Graduate Medical Assembly which the Academy will conduct in Nashville on October 3-4-5, headquarters at the Maxwell House. The Assembly will present 12 out-of-state essayists, all eminent authorities in their fields. Papers will deal with subjects in neurosurgery, surgery, pediatrics, medicine, urology, obstetrics, audiology, and proctology. The Assembly will be replete with formal lectures, symposia, round-table luncheons, technical exhibits, entertainment and banquet. (Tip to early registrants) . . . there are a few tickets

to the Alabama-Vanderbilt football game on Saturday following the adjournment of the Assembly on Friday. Executive Secretary Jack Ballentine has sent out 10,000 announcements to physicians in Tennessee, Alabama, Georgia, Florida, and Kentucky. Final programs will be mailed to the same physicians in September.

The Academy's program committee has already arranged its 1951-52 scientific program to begin next September. It will feature more local essayists, "live clinics" where actual patients will participate, and a greater number of dinner meetings.



### Memphis and Shelby County Medical Society

The May 15 meeting was conducted by the staff of the Kennedy Veterans Hospital. G. I. Plitman, M.D., presented a case report on "Idiopathic Calcinosis Circumscripta," and N. H. Kraeft, M.D., a case of "Resection of the Esophagus with Thoracic and Abdominal Incisions." R. F. Bowers, M.D., read a paper on "The Problem of Gastric Cancer." A paper entitled "The Effects of Steroid Compounds Other Than Cortisone in the Treatment of Rheumatoid Arthritis" was presented by A. M. Lefkovits, M.D.



A plan "designed to consolidate some of our important medical meetings, while still preserving the autonomy of the individual units and insuring their effectiveness," has been proposed by Dr. Wm. D. Stinson, President of the Memphis and Shelby County Medical Society.

On the following page, you will see Dr. Stinson's graph picturing the idea he proposes. The graph and this article are presented for the consideration of other medical societies who recognize the problem for which Dr. Stinson is seeking a solution.

"Memphis, like many similar cities, simply has too many meetings for the members of the medical profession to humanly do justice to any," Dr. Stinson says in a letter to the Committee on Hospital Standardization of the American College of Surgeons.

These organizations are all justifiable in



# **PROPOSED PLAN FOR COMBINING MEETINGS OF THE MEMPHIS AND SHELBY COUNTY MEDICAL SOCIETY AND THE STAFF MEETINGS OF THE SIX GENERAL HOSPITALS OF MEMPHIS — WM. D. STINSON**

SEPARATE MEETING OF EACH HOSPITAL STAFF, FOR ELECTIONS AND BUSINESS PECULIAR TO THAT INSTITUTION MEMPHIS & SHELBY COUNTY MEETING FOR ECONOMICS, PUBLIC RELATIONS, GUEST SPEAKERS, ETC.	COMBINED MEETING OF ALL HOSPITAL STAFFS AND MEMPHIS-SHELBY COUNTY MEDICAL SOCIETY AT THE PATHOLOGIC INSTITUTE AUDITORIUM; THE HOSPITAL STAFFS ALTERNATELY PRESENTING THE SCIENTIFIC PROGRAM	MEETING ONLY OF THE HOUSE OF DELEGATES AND EXECUTIVE COMMITTEE OF THE HOSPITAL STAFFS
JANUARY		
	FEBRUARY—Baptist	
	MARCH—Methodist	
APRIL		
	MAY—St. Joseph	
	JUNE—John Gaston	
		JULY Annual
		AUGUST Fellowship Jamboree
SEPTEMBER		
	OCTOBER—Kennedy	
	NOVEMBER—Millington Naval	
DECEMBER—(Elections)		

It might be feasible to hold one joint clinico-pathologic conference weekly, rather than the separate conferences in each hospital.

their formation, and necessary in their existence, but some attempt is definitely indicated to consolidate duplicate activities.

Dr. Stinson forcefully stated the problem as follows:

"Medical activities in Memphis consist of the following:

"1. The Medical School of the University of Tennessee, in which a large number of our men participate, many on a voluntary basis.

"2. Four general hospitals, including the teaching hospital of the Medical School, which is also the city charity hospital.

"Due to the large amount of industrial, insurance and railroad work of Memphis, it is necessary for many of our men to be on multiple hospital staffs. Attendance being compulsory at hospital staff meetings, the four hospitals hold staff meetings on non-conflicting dates, at twelve monthly intervals.

"All of our hospitals are departmentalized and are conducting excellent educational programs for internes and residents. This requires departmental meetings in addition to teaching conferences. In order to hold the members for the meetings, all hospital staff meetings are dinner meetings at the expense of the hospital. This plan will eliminate eight of these meetings, which in at least two of the hospitals, will mean 1,000 dinners each, annually, a considerable item in these days of increasing costs of hospital management.

"3. We have several specialty hospitals, some of which are Memphis Eye, Ear, Nose and Throat Hospital; Gartly-Ramsay (chiefly neuro-psychiatric); the Willis Campbell Orthopedic Clinic; Crippled Children's Hospital; a Children's Hospital (under construction) and the West Tennessee Tuberculosis Hospital.

"There are four Government hospitals: The Marine Hospital; Millington Naval Hospital; Kennedy General Veterans Hospital and the Veterans Administration Hospital. Many of our men are consultants to these hospitals and participate in their activities. These hospitals will be invited to join in this movement if it is possible for them to do so.

"4. Practically all of our specialists, including general practitioners have their own organizations, these meetings being well attended, and certainly justified in their existence.

"5. The Memphis and Shelby County Medical Society, with a membership of 525, is a very necessary component of the Tennessee State Medical Association and the American Medical Association. It meets twice a month, the first monthly meeting being preceded by the House of Delegates, consisting of 60 of our members. From all indications, by the end of the year we will have 100% paid memberships in the A.M.A., though attendance at the bi-monthly meetings of the County Society rarely equals 20% of the membership.

"National Societies, particularly the A.M.A., are dependent upon the local society for contact with the individual practitioner, a function that is not at its proper level in Memphis.

"With all these strictly medical obligations, we have very little time left to devote to the increasingly important part we should take in civic activities."

Dr. Stinson's proposal is not final, and has not been acted upon by any parties concerned. Copies have been sent to Memphis society members and hospital administrators to promote discussion.

He submitted the plan to the Committee on Hospital Standardization of the American College of Surgeons because it deviates in some ways from the Committee's requirements for hospital standardization and acceptance as an accredited hospital.

The greatest deviation is that of eliminating all July and August meetings, except for the House of Delegates and the Executive Committees of the hospital staffs.

## MEDICAL NEWS IN TENNESSEE

### Upper Cumberland Medical Society

The society held its meeting at Red Boiling Springs on June 26-27 under the presidency of Dr. J. T. DeBerry of Cookeville. The following program was presented:

Ectopic Pregnancy—W. Powell Hutcherson, M.D., Chattanooga



Transitory Changes of Refractions In Diabetes Mellitus—W. M. Brown, M.D., Livingston

Infections of the Upper Respiratory Tract and Their Influence on the Pulmonary System—R. C. Gaw, M.D., Gainesboro

Diagnosis of Obstructive Jaundice—G. Y. Graves, Bowling Green, Kentucky

Non-Malignant Breast Lesions—C. S. McMurray, M.D., Nashville

Treatment of Cardiac Arrhythmias—C. W. Adams, M.D., Nashville

Evaluation of Modern Methods of Treating Burns—Beverly Douglas, M.D., Nashville

Surgical Complications of the Chronic Ear—R. C. Richardson, M.D., Glasgow, Ky.

Tuberculosis of the Joints—S. B. Fowler, M.D., Nashville

Occurrence of Urinary Tract Calculi in the Nashville Basin—S. Y. Garrett, M.D., Nashville

Evaluation of the Treatment of Hypertension—W. R. Cate, M.D., Nashville

Injuries of the Common Bile Duct Following Cholecystectomy—J. D. Lester, M.D., Nashville

Amputation in the Suction Socket Prosthesis—Joe D. Byrd, M.D., Nashville

Some Topic Management of Marginal Ulcer—B. F. Byrd, Jr., M.D., Nashville

Surgery of the Biliary Tract—L. W. Edwards, M.D., Nashville

Management of Biliary Artesia—J. A. Kirtley, M.D., Nashville

Urological Problems in Children—Oscar Carter, M.D., and John Tudor, M.D., Nashville

Fallacies About the Skin—Frank C. Witherspoon, M.D., Nashville

Fetal Mortality in Caesarean Section—Harry Jenkins, M.D., Knoxville



## Department of Public Health

The following letter was received from the Commissioner June 21, 1951:

Dear Dr. Kampmeier:

Because of numerous calls to this office concerning the licensing of hospitals and because of the general misunderstanding of the amendment to Chapter 13, Public Acts of 1937, I am quoting herewith excerpts from the official minutes of the meeting of the Hospital Licensing Board held in Nashville May 15, 1951.

"Dr. Hutcheson explained that at the meeting of the Hospital Licensing Board in November an act was drawn to amend Chapter 13, Public Acts of 1947, which would bring under licensure all institutions having at least one bed. It was not the intention of the Board to bring within the provisions of the law all doctors offices with one bed, but to include all nursing, convalescent, rest homes, etc., having less than five beds since so many of these homes were in operation throughout the State without a license. Dr. Hutcheson further explained that this act was actually to be voluntary; however, it was amended as written and is now Chapter 198, Public Acts of 1951."

"After the passage of this amendment, it was necessary to change the regulations and laws pertaining to hospitals in the State. The regulations are in the hands of the verityper and will be ready for distribution within a few weeks.

"After a brief discussion by the Board of the different situations within the State of the definition of a 'hospital' the following motion was made by Mr. Hilgers:

*"I move that we enforce the law with regard to those clinics that provide patient beds for twenty-four or more hours, but in those cases where the doctor is conducting a clinic where patients are kept less than twenty-four hours except in an emergency, and uses the clinic beds normally for recovery purposes only, that such 'clinics' not be required to apply for a license.*

*"In all instances in the case of boarding homes, nursing, convalescent, etc., the law is clear and the hospital service division should make every effort to see that these are licensed within the act.*

"Dr. Oliver seconded the motion and it was carried unopposed."

If properly interpreted by the individual clinic operator, no clinic should make application for a license to operate as a hospital unless such clinic routinely makes a practice of caring for patients through a twenty-four hour period and provides necessary twenty-four hour nursing service, etc., for the patient.

Anticipating that it would be impossible for this office to inspect all applicants for licensure prior to licensing, the Board directed that we issue a license upon application and that inspection be made as rapidly as possible and license revoked for those not qualifying under the definition and regulations. Since this office is short on personnel, it would facilitate our work if those individuals who know they are not eligible would not seek a license. Under the above definition as set forth, the number who will be entitled to a license will be small.

If the JOURNAL would carry some official notice concerning the action of the Hospital Licensing Board, it would help not only the doctors, but this office as well.

Yours very truly,  
R. H. HUTCHESON  
Commissioner

## Abortionist Convicted

The Enforcement Division of the State Licensing Board for the Healing Arts was instrumental in securing a conviction of Otto Curtis Elam for practicing medicine without a license in the criminal division of a special court in Dyersburg last month. The defendant admitted, after arrest, that he had performed a number of "illegal" operations at his home in Weakley County. His fee, he said, was \$35.00. His "medical education" consisted of completing the fifth or sixth grade in public school.



## VA to Study Malnutrition in POW's

Fee-basis physicians in Tennessee rendering home town medical care to veterans under the Association's contract were requested by the VA to assist with studies conducted by the VA of the mental and physical sequelae of malnutrition and starvation suffered by prisoners of war. Fee-basis physicians are requested to use code letters in identifying the veteran patient who has been a POW on report forms submitted to the VA. Code letters to be used are as follows, and to be placed on the bottom margin of reports:

POW-J—Prisoner of the Japanese during World War II

POW-O—Prisoner of enemy forces other than Japanese during World War II

POW-K—Prisoner of the North Korean Forces or their allies during the present conflict originating June 27, 1950

NPOW—Not a prisoner of war in either World War II or the present Korean conflict



## Memphis Hospital Service Announces Increased Rates

Memphis Hospital Service, one of the underwriters of The Tennessee Plan serving the West Tennessee area, has announced increases in premiums for both its Blue Cross Hospital insurance and the Tennessee Plan, effective August 1, 1951. Mr. W. W. Mcrary, Jr., executive director, said that

the increased use of hospitals, more hospital services, and higher hospital costs necessitated the increase. The increase for both hospital, surgical and medical benefits is approximately 20 per cent.



## UT Medical School Graduates 41 Physicians

Forty-one physicians were graduated from the College of Medicine of the University of Tennessee last month. At the same time, the College of Dentistry graduated 24 dentists, and the School of Nursing, 13 nurses.

It is expected that these graduates will largely practice in Tennessee which will further alleviate the alleged shortage of medical and allied personnel.



## Study Commission on Indigent Care to Meet

Dr. R. H. Hutcheson, Chairman of the Study Commission recently appointed by Governor Browning to study and recommend a system of medical and hospital care for Tennessee's indigent, has called a meeting of the Commission in Nashville on Saturday, July 7, at 2:00 p.m. at the Andrew Jackson Hotel. Dr. Hutcheson said that this first meeting will be given over to organizational purposes and planning the course of the Commission's studies during the next several months. Undoubtedly, the Commission will, during its assignment, make a careful survey of several indigent care programs already in operation in Tennessee at local levels, notably the Unicoi County Plan, the Washington County Plan, and the 17-county program now being operated in East Tennessee with St. Mary's Hospital in Knoxville serving as the focal point of service.

Legislative action authorizing the Governor to appoint this Commission was sponsored by the Association's Public Service and Legislative Committees. It is hoped that this Commission will develop a practical, state-wide plan of indigent care which can be authorized by the next session of the legislature, thus making Section A of Point



III of the Association's Public Service Program a reality within the next two years.



### Tennessee Anatomical Board Named

Governor Browning re-appointed three members of the Anatomical Board recently, and named a fourth member to fill a vacancy. Present members are Dr. Sam Clark, Nashville, Dr. Malcolm Tipton, Union City, Dr. D. T. Rolfe, Nashville, and Dr. John Shapiro, Nashville.



### Tennessee Public Health Service Funds

From the A.M.A. Bulletin issued by the Washington Office it appears that the following allotments of money have been made to the State of Tennessee by the Public Health Service of the Federal Security Agency for fiscal 1951:

Venereal Disease Control	\$158,700
Tuberculosis Control	180,400
General Health	370,800
Mental Health	71,300
Heart Disease Control	43,500
Cancer Control	72,800
Water Pollution	19,400
Hospital Construction	2,809,574

Grants for Maternal and Child Welfare for the fiscal year 1951 are as follows:

Maternal and Child Health Services	\$469,701
Services for Crippled Children	260,470
Child Welfare Services	263,442



### University of Tennessee

Five visiting professors will join the faculty of the Medical Units for the Summer Quarter, beginning July 9. They are: Dr. F. R. Steggerda as visiting professor of physiology from the University of Illinois; and for the Division of Anatomy, Dr. J. A. Leatham of Rutgers University, Dr. G. G. Robertson of Baylor College of Medicine, Dr. R. L. Bacon of Stanford University and Dr. D. L. Stilwell of Stanford.



### Murfreesboro Staff Hears Dr. Muncie

Dr. Wendell Muncie, Associate Professor

of Psychiatry at the Johns Hopkins Medical School addressed the staff of the Veterans Administration Hospital at Murfreesboro on June 11 and 12, on the following subjects: "Principles of Psychobiology," "Psychobiology as Applied to Psychiatry" and "The Future of Psychobiology."



### Hearing and Speech Foundation Opened

The Tennessee Hearing and Speech Foundation opened to accept patients in its Nashville headquarters on July 1st.

Doctor Freeman McConnell, a Ph.D. in Hearing and Speech correction, is Director of this non-profit Foundation.

Political and civic organizations are contributing funds to help finance the operation of the Foundation, which was designed to discover and treat numerous Tennesseans afflicted with some hearing or speech defect. An exhaustive survey disclosed that five percent of Tennessee school age children have some hearing defect and ten percent have a speech impediment.

While most of the work will be devoted to children, adult patients will be accepted.

The patient will be taken mainly by referral from doctors throughout the state. The proper procedure for referral is for the doctor to report his findings to Dr. McConnell, Tennessee Hearing and Speech Foundation, 2109 Garland Avenue, Nashville. Complete physical examination will be required before the patient is referred to the clinic. Dr. McConnell will then write the referring physician and give an appointment to the patient.

After making tests and a diagnosis, the Foundation will then refer the patient back to a home town specialist in cases where medical treatment is required.

This report of the Foundation's activities is authorized by Dr. W. W. Wilkerson of Nashville, Chairman of the Board of Directors of the Foundation.

## PERSONAL NEWS

Dr. Jack Adams addressed the Chattanooga Kiwanis Club on June 12 on the sub-

ject of radioactive isotopes. **Dr. John B. Steele** of Chattanooga was a guest at the meeting.

**Dr. Luke Ellenburg** has completed his residency in pediatrics at Vanderbilt University Hospital and plans to reopen his offices for the practice of pediatrics in Greeneville about July 1.

Three Knoxville physicians, **Dr. J. E. Acker**, **Dr. B. M. Overholt** and **Dr. R. B. Wood**, were scheduled to represent East Tennessee at the 27th Annual Meeting of the American Heart Association in Atlantic City June 6 to 10.

**Dr. W. H. Siler** of Silerton was scheduled for special honors by his community on June 10 for his 62 years of service. The special program was to be conducted at the Silerton Baptist Church.

Dr. Siler attended the Memphis Hospital Medical College in 1899. Dr. Siler is active in community work, having served on his local school board and in lay capacities in his church. During his long practice he has delivered more than 4,000 babies.

**Dr. James A. Loveless**, Gallatin, was elected President of the Staff of the Fountain Head Hospital at an organizational meeting on May 17, 1951. **Dr. Albert Dittes** was elected vice-president, and **Dr. S. C. Knight** was elected secretary-treasurer.

**First Lieutenant Walter H. Smartt**, a Chattanooga physician, is now on duty at the 314th Air Division Base in Japan. He received his M.D. degree from the University of Virginia in 1948. He has been awarded the Good Conduct Medal, the American Campaign Medal, and the World War II Victory Medal during his services in the air force.

**Dr. Jere L. Crook**, Jackson, a past president of this Association, and a past president of the Southern Medical Association, addressed the First Councillor Meeting of the Arkansas Medical Society on Thursday, May 24, 1951. Other Tennessee doctors on the program were **R. L. Sanders** and **Harwell Wilson** of Memphis.

**Dr. D. F. Douglas** of Dyer, Tennessee, is the new president of the West Tennessee Medical and Surgical Association. He succeeds **Dr. Charles F. Webb** of Jackson.

**Dr. Archer W. Bishop** of Clinton, moved into his new office quarters in the latter part of May. The modern brick building, fireproof throughout, is located at the corner of Broad and Bowling Streets.

**Dr. Roy Douglass** of Huntingdon, read a paper on "Problems of the General Practitioner" before the West Tennessee Medical Association meeting in Union City in May.

**Dr. Cleo Miller**, Nashville, and a past president of the Nashville Academy of Medicine, was elected president of the Nashville-Davidson County Red Cross Chapter at the organization's annual meeting held in Neely auditorium at Vanderbilt University recently.

**Dr. R. W. Billington** and **Dr. B. T. Nolen** were hosts on June 9, 1951, to the reunion of the Class of 1906 of the Vanderbilt University School of Medicine. Eight members of this class enjoyed a fried chicken, boiled ham supper at the Billington home at Riverside on the Lewisburg Road. The class members came from New Mexico, Texas, Alabama and Washington, D. C., as well as different sections of this state.

**Dr. W. W. Wilkerson, Jr.**, Nashville, was elected chairman of the recently created Board of Directors for the State Tuberculosis Hospitals at a recent organizational meeting. Other Tennessee physicians on the Board are **Dr. Leland Johnson** of Jackson, **Dr. William J. Sheridan** of Chattanooga, **Dr. Joseph L. Raulston** of Fountain City and president of the Knoxville Academy of Medicine. The physician members of the Board were appointed by Governor Browning upon nomination by the Tennessee State Medical Association.

**Dr. R. B. Wood**, Knoxville, and one of our delegates to the AMA, is named president of the Tennessee Valley Kennel Club, better known as the "Bow Wow Club."

**Dr. Jack Farrar**, Mayor of Tullahoma, certainly had his hands full on Monday, June



25, in planning for President Truman's visit to his home-town for the dedication of the AEDC. Dr. Farrar has served his town in many capacities including the Mayorship for several years.

**Dr. Charles Suggs, Jr.**, Chattanooga, has been named a diplomate of the American Board of Obstetrics and Gynecology. Dr. Suggs received his M.D. degree from Vanderbilt University and served as resident in obstetrics at Gallinger Hospital, Washington, D. C. Dr. Suggs is associated with **Dr. R. G. Demos** in the Interstate Building. Dr. Demos is secretary of the Chattanooga Hamilton County Medical Society.

**Dr. B. F. Byrd, Sr.**, Medical Director of the National Life and Accident Insurance Company and Chairman of our Association's Insurance Committee, was scheduled to be installed as Chairman of the Medical Section of the American Life Insurance Convention at its meeting in Colorado Springs last month. Dr. Byrd has served this organization as Secretary since 1934 and is the third man to hold the Secretary's office since the founding of the American Life Insurance Convention more than forty years ago.

**Dr. Oscar N. Torian** was scheduled to receive an honorary doctor of laws degree at Indiana University's commencement exercises June 18. Dr. Torian is the director of the children's wing of the Emerald Hodgson Memorial Hospital in Sewanee. The hospital has recently completed a new outpatient clinic which houses treatment rooms for the staff of six doctors who serve patients from a wide six county area.

**Dr. Joe W. Johnson, Jr.**, of Chattanooga, was scheduled to fly his private plane to Colorado Springs last month where he was to read a paper entitled "Diagnosis of the Decompensated Personality as an Insurance Risk" before the Medical Section of the American Life Insurance Convention.

## WOMAN'S AUXILIARY

### *State President-elect Installs Memphis Officers*

Mrs. Horace D. Gray was installed as President of the Woman's Auxiliary of the

Memphis and Shelby County Medical Society in May meeting by Mrs. Jewell Dorris, the new President-elect of the State Auxiliary.

Mrs. Dorris declared that the Auxiliary's reason for existence is to help the Medical Profession in every way possible to achieve its goals of service and scientific advancement.

Each other new officer installed gave Mrs. Gray a red rose symbolizing loyalty to her and the Auxiliary. Accepting the gavel from Mrs. George Burkle, retiring president, Mrs. Gray pledged the Auxiliary to solid support of the Society, with special emphasis on the fight for freedom in medicine and against political medicine.

Mrs. Burkle's report of the past year's work by the Auxiliary was an inspiration and a challenge to this year's leadership. Mrs. Ben Pentecost, President-elect and immediate past Recording Secretary of the State Auxiliary, presented Mrs. Burkle with a silver tray, a token of the Auxiliary's appreciation of her untiring and faithful leadership.

Of special interest was a report of the annual Essay Contest sponsored by the State Auxiliary. The winner, Altha Jane Turner of Knoxville, so impressed physicians by her wording and delivery of the essay, that a scholarship has been provided for her at Maryville College. The scholarship comes from a private fund headed by a Chattanooga philanthropist in the insurance field.



### *Consolidated Auxiliary*

#### *Hears Fine Report on*

#### *British Labor Government*

Members of the Consolidated Woman's Auxiliary heard, in May meeting, an enlightening discussion of the British Labor Government by Miss Frances Smith of the English Department of Humboldt High School.

Miss Smith, a Vanderbilt M.A., reviewed the book, "The Cautious Revolution" by Ernest Watkins. She told how the English

Labor Government came into power, what it is, its accomplishments and aims.

Special emphasis was placed on the book's chapter dealing with the National Health Program.

## LOCATION WANTED

*A young physician serving an internship out of state desires to find a location in Tennessee. Part of his letter follows:*

"I graduated from the University of Tennessee College of Medicine in December, 1950. I am serving a one year internship in Lima Memorial Hospital (Lima, Ohio), and am to complete the period December 31, 1951. I shall be available in January, 1952. I am licensed in Tennessee.

"I am twenty-seven years old and unmarried. The size and nature of the community is not of the greatest importance to me. I would prefer to find an area that has a doctor who wants an associate, or at least find a place where there is another doctor near by. . . . I plan to take a vacation in two months and look around a bit over the locations available. I thank you very much for your consideration of this matter."

The physician's name and address will be furnished upon inquiry addressed to the Executive Secretary. (LW-I)



## General Practitioner Wanted

An established physician in a West Tennessee town of 10,000 population has advised this office that there is an excellent opening for a general practitioner there. The name of the informing physician and the town will be furnished upon request by the Executive Secretary. (PW-I)

## ABSTRACTS OF CURRENT LITERATURE

**Acute Appendicitis Incidental to Gynecologic Abdominal Procedures.** Rosset, E. M., and Conston, A. S., *Am. J. Obst. & Gynec.*, 61:1136, 1951.

Incidental appendectomy is practiced in the Department of Gynecology at the Mt. Sinai Hospital, providing the nature of the primary operation permits and the appendectomy does not contribute additional hazard to the patient. All tissues ex-

cised are examined by the Department of Pathology and their report invariably comments upon the appendix. These reports have indicated a definite incidence of "acute appendicitis" as a microscopic diagnosis of the incidentally removed appendix. Since most of the patients in the Department are non-emergency admissions with a one week's wait before entering the hospital, and since they did not have obvious signs or symptoms of appendicitis, the authors became interested in the explanation for such findings. As a first step they re-examined the criteria for the diagnosis of appendicitis and compared the standards for the microscopic diagnosis of early appendicitis with those of other pathologists in this area, as well as with the criteria as outlined in the various textbooks of pathology. Finally, the authors resurveyed the various theories of the pathogenesis of appendicitis. All this was done in the hope that they could find an explanation for the "acute appendicitis" accidentally encountered during the gynecologic abdominal procedures. There is a definite incidence of microscopic acute appendicitis in the incidentally removed appendix. Theories of pathogenesis can explain the asymptomatic case of appendicitis. If the factors of production, especially obstruction, are minimal, slight changes may occur without symptoms. Acute inflammation of the appendix may occur with greater frequency than appreciated, since such episodes can be asymptomatic. Continuation of routine incidental appendectomy is advisable provided risk to patient is not increased. (Abstracted by Hamilton V. Gayden, M.D., Nashville, Tenn.)



**Ocular Manifestations of Aneurysms of the Circle of Willis.** Campbell, E., and Burkland, C. W., *Am. Jour. Ophth.*, 34: 795, 1951.

Aneurysms of the circle of Willis are the most frequent cause of spontaneous subarachnoid hemorrhages. Involvement of adjacent nerves, oculomotor, trochlear and abducens, as well as optic and trigeminal, is quite common and is helpful in diagnostic localization. Aneurysms which impinge upon the extraocular nerves can be divided into five groups according to their location: 1. internal carotid; a. those within the cavernous sinus, b. those upon the intracranial portion of the internal carotid, and c. those occurring at the bifurcation of the carotid; 2. middle cerebral; 3. anterior cerebral and anterior communicating; 4. posterior communicating; 5. basilar and posterior cerebral.

The initial hemorrhage is fatal in approximately half the patients. The prognosis is poor because of the danger of subsequent bleeding. Many of these aneurysms are so situated that they can be surgically treated and it is wise to have arteriograms taken when possible. (8 figures.)

(Abstracted by Robert J. Warner, M.D., Nashville, Tennessee.)



**The Use of Sulphydryl in the Treatment of Scars Following Chemical Eye Burns and Ulcers.**



Cruthirds, A. E., *Am. Jour. Opth.*, 34: 647, 1951.

Sulfhydryl, commercially known as Hydrosulphosol, apparently facilitates the reduction of corneal scars of numerous types. Five such cases are presented. The compound is employed topically in a 1 to 40 aqueous solution instilled at intervals of two hours, or as a compress saturated with a 1 to 20 solution and changed twice daily. The topical use may be supplemented by oral administration of gelatine capsules containing 5 to 10 drops of the drug and taken three times daily after meals.

Sulfhydryl influences the cellular SH metabolism by combining with some other compound in the body. This combination endows it with therapeutic activity previously nonexistent. The new compound acts as a true organic sulfhydryl, although as hydrosulphosol, it does not possess an organic linkage. Hydrosulphosol acts in the same manner as BAL in protecting experimental animals against the effects of alloxan. The compound has been successfully employed in the treatment of all types of corneal scars including those produced by X-Rays.

(Abstracted by Robert J. Warner, M.D., Nashville, Tennessee.)

## BOOK REVIEW

**Hospital Staff and Office Manual.** T. M. Larkowski, M.D., and A. R. Rosanova. Romaine Pierson Publishers, Inc., Great Neck, N. Y., 1951. 428 pages.

This pocket-size manual covers a host of subjects and items. It includes information on so many topics crammed into such a small space that it is obvious at once that the briefest presentation is necessary. As a result it has the shortcomings of most manuals—incompleteness. To be sure this is not serious if the manual is used for what it is designed for, namely, a quick reminder of details of which the physician may be unaware. There is always the danger that a manual will be used by the busy practitioner in lieu of more adequate study of medical texts.

The book includes descriptions of routine hospital techniques, laboratory procedures, electrocardiography, X-ray techniques, anesthesia, materia medica, notes on medicolegal practice and physical medicine. In addition there are sections on medicine, surgery, urology, gynecology, obstetrics, pediatrics, orthopedics, dermatology, ophthalmology, oto-laryngology, neurology and psychiatry. Hundreds of diseases are mentioned by

name with a definition of them and treatment notes. The same applies to complications in surgery, obstetrics, etc. Also at least a hundred line drawings are used in illustrating the text.

If properly used this manual has a place in the intern's pocket or in the physician's bag for quick reference while walking down the hospital corridor or for other hurried reference needs. It is neither designed for nor can replace unhurried study of disease, surgical technics or complications.

R. H. K.

## ANNOUNCEMENTS

### Special Letter from the State of Tennessee Department of Public Health

*To: All Practicing Physicians in Tennessee.*

*Dear Doctor:*

Recently we have had submitted to our laboratory for examination for malaria parasites, blood smears in which we found the parasites. Both cases proved to have originated from outside the boundaries of Tennessee; however, the malaria did develop while they were within our state. Prior to this time, we have gone 33 months without finding a proven positive smear.

Every possible attempt is being made by the State Department of Public Health to eradicate malaria from Tennessee. I know that you are interested in this effort and your assistance is requested, therefore, I would like to suggest that in every suspected case of malaria, a diagnostic thick and thin blood smear be submitted to the state or branch laboratory to which you ordinarily submit your specimens. This smear should be submitted with the Tennessee Department of Public Health Form No. 600 on the reverse side of which are printed directions for securing these smears. (This is the same form you use for submitting blood for serology.) The forms can be secured from your local health department.

Only by locating positive cases and taking the necessary steps to protect the people in the area in which cases occur can we be successful in the program of eliminating malaria.

Yours very truly,  
R. H. HUTCHESON, *Commissioner*



### Hepatitis from Thrombin

Dr. Hutcheson, Commissioner of Health, has received the following information from Public Health Service:

"Information has been received through the Communicable Disease Center of a group of cases of

serum hepatitis which have occurred over the past 10 months in Portland, Me. Fourteen cases among neurosurgery patients have presumably followed the use of thrombin of human origin. The incubation periods in this group of cases were from 90 to 105 days. The disease has had all the clinical features of serum hepatitis following use of other human blood products. It is reported that a similar group of cases have also occurred in Boston.

"The significance of the association between the use of human thrombin and the occurrence of hepatitis was pointed out by Dr. Joseph E. Porter,

pathologist of the Maine General Hospital. The health officer of the city of Portland, Dr. E. W. Colby, and the Region I Medical Director in Boston, Dr. Richard Boyd, initiated the preliminary steps in the investigation which was conducted by the Communicable Disease Center in Atlanta, Ga.

"The Laboratory of Biologics Control of the National Institutes of Health has issued an order that manufacturers recall forthwith all thrombin of human origin from their distributing centers and consignees, which include druggists, physicians, and hospitals."



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# APPROVED CARD RECORD

## Committee on Postgraduate Instruction in Obstetrics

### FRONT

Date \_\_\_\_\_

Name \_\_\_\_\_ Age \_\_\_\_\_ M.S.W. \_\_\_\_\_ Color \_\_\_\_\_

Address \_\_\_\_\_

Date of Last Period \_\_\_\_\_ Date of Quickening \_\_\_\_\_ Confinement \_\_\_\_\_

Number of Children \_\_\_\_\_ Living \_\_\_\_\_ Dead \_\_\_\_\_ Stillborn \_\_\_\_\_

Character of Labors: \_\_\_\_\_

Miscarriages: \_\_\_\_\_

P. M. H.—operations: \_\_\_\_\_

Physical Examination: \_\_\_\_\_ Teeth: \_\_\_\_\_ Tonsils: \_\_\_\_\_ Heart: \_\_\_\_\_

Thyroid: \_\_\_\_\_ Breasts: \_\_\_\_\_ Lungs: \_\_\_\_\_

Abdomen: \_\_\_\_\_

Pelvic Measurements: Spines: \_\_\_\_\_ Crests: \_\_\_\_\_ Ext. Conjugate: \_\_\_\_\_

True Conj.: \_\_\_\_\_ Transverse of Outlet: \_\_\_\_\_

Type of Pelvis: \_\_\_\_\_

Pelvic Examination: \_\_\_\_\_ Blood Count: \_\_\_\_\_ Date—Hb \_\_\_\_\_ RBC \_\_\_\_\_ WBC \_\_\_\_\_

Blood Wassermann: \_\_\_\_\_ 1. \_\_\_\_\_

\_\_\_\_\_ 2. \_\_\_\_\_

### BACK

## PRENATAL EXAMINATION

Date									
Blood Pressure									
Weight									
Vaginal Examination									
Height of Fundus									
Fetal Position									
F. H. S.									
Engagement									
Diet									
Bowels									
Bleeding									
Headache									
Edema									
Pain									
Vertigo									
Vomiting									
Eyes									
Urine: Albumin									
Sugar									
S. G.									
Microscopic									

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# Journal of the Tennessee State Medical Association

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*The value of laboratory aids in the modern practice of medicine is an established fact. The better and more definitive use of the laboratory is still to be attained. The author has emphasized the simpler laboratory aids particularly applicable in daily practice.*

## LABORATORY AIDS FOR THE GENERAL PRACTITIONER\*

JACK ADAMS, M.D.,† Chattanooga, Tenn.

Much has been written concerning the philosophy of the laboratory and the general practitioner,<sup>1, 2, 3</sup> but any attempt to point out the practical methods which may be applied by the general practitioner has been sadly neglected. Is it that the doctor is removed from the laboratory, or perhaps is it that the laboratory is removed from the doctor? What is quite certain is that laboratory tests are no longer regarded by any section of the medical profession as being necessary only in obscure or "interesting" case. As has been often said, the research of yesterday is the routine of today, and the laboratory is now as valuable an instrument in the diagnosis of disease and in the assessment of treatment as the sphygmomanometer or the stethoscope, and ought to be as readily available to everyone engaged in clinical medicine.

Yes, I advocate that a microscope, accessibly placed on a table in close proximity to a sink, is quite as necessary a part of a physician's office as the examining table and the blood pressure apparatus.

Examination of the urine is considered to be a necessity. The estimation of albumin by the heat and acetic acid method is simple and inexpensive. The presence or absence of reducing substances by means of the Benedict Test using 8 drops of urine and 5 cc. of Benedict's Solution which is boiled for 5 minutes is essential for every doctor's office. These two tests are recommended above the "Lab Aid" tablet tests because of

the deterioration of the tablets and other solutions. The urinary sediment examined under the microscope for the presence or absence of casts and cells is mandatory in cases varying from suspected appendicitis to urinary tract infections. In the latter type of infection the stained smear of the sediment of a freshly voided urine is a minimal "must" in this era of antibiotics. The simple Gram stain has come to its own during this past decade and has become a necessity for the doctor who attempts to treat infections of the urinary tract. It is an all too frequent experience of mine for physicians to come in with a story of the patient with pus in the urine, fever and back pain who has failed to respond to sulfonamide and penicillin therapy. A simple smear immediately reveals the frequent Gram negative rod of *B. coli* which will respond dramatically to other antibiotics.

The low, fixed specific gravity of the urine often tells the tale in cases of seriously impaired renal function. The simple Fishberg test consisting of a determination of the specific gravity of three voided urine specimens collected at hourly intervals during the early morning, after limiting fluids during the preceding night remains the best kidney function test at our disposal.

The examination of fresh exudates and discharges from any part of the body by stained smears is an absolute necessity in order to select the proper antibiotic. During recent weeks I have seen two cases of purulent meningitis which have failed to respond to penicillin and streptomycin. One such case, even after some ten days of such therapy still revealed the typical biscuit

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shaped, intracellular, Gram negative diplococcus of classical cerebro-spinal meningococcus meningitis. Sulfadiazine is certainly the drug of choice for such an infection. Smears of urethral and vaginal discharges are of obvious importance. Warm, fresh, saline drop preparations readily reveal the all too common trichomonas which inhabits the genito-urinary tracts of many women and some men.

The Giemsa stain is one of particular value and is perhaps the best method for staining the spirochetes and fusiform bacilli of Vincent's type of infections. Smears are fixed for one minute in absolute methyl alcohol and stained for 30 minutes in a solution of 1 drop of stock Giemsa stain to each cubic centimeter of distilled water. Vincent's infection, when mainly confined to the tonsil, is often mistaken for diphtheria. It must be remembered that Vincent's infection is sometimes not a disease *sui generis*, but may occur as a complication of granular fever (infectious mononucleosis), a not uncommon disease, agranulocytosis and acute leukemia and if the condition does not quickly respond to treatment an examination of the blood picture should not be neglected.

Diphtheria is not an easy disease to diagnose clinically and many cases so diagnosed frequently turn out to be something else. Never-the-less, the clinician is primarily responsible for deciding what action should be taken when diphtheria is suspected; bacteriological findings are merely confirmatory. Little reliance can be placed on the examination of the stained smear from the membranes, and occasionally two or three days may elapse before a definite bacteriological report can be given. If diphtheria is suspected and the patient appears quite toxic antitoxin should be administered without delay. Certainly in such conditions a swab of the throat should be made and inoculated on Löffler's media, and smears prepared from this or additional swabs. It is to be remembered that cases of nasal diphtheria are usually mild and may be missed without laboratory investigation. At the same time the mere finding of diphtheria bacilli does not warrant a diagnosis of diphtheria in the absence of clinical

signs and symptoms, but indicates a carrier state, the significance of which depends upon the result of virulence tests.<sup>1</sup>

Pertussis is a most serious member of the acute specific infections of childhood. Over 40 percent of all deaths from pertussis occur in children under one year of age, so it is obvious that the earliest possible diagnosis is essential. The whoop is frequently a late sign and it sometimes fails to appear. It is during the early period of the catarrhal phase, when the symptoms are regarded by the parents as a somewhat persistent common cold, that this disease is most infectious. In the early stage, when isolation and careful nursing will be most beneficial both to the patient and to intimate contacts, the causative organism *Hemophilus pertussis* may be recovered in about 90 percent of the cases, and an early bacteriological diagnosis is therefore of first importance. The common cough plate method for the isolation of *H. pertussis* which may give good results in hospital practice is for several reasons inconvenient in general practice. Thus, the post nasal swab offers the best and easiest method for establishing a diagnosis. An ordinary throat swab bent at an angle of 120 degrees about one half inch from the end, is passed behind the soft palate and material is collected from the post nasal space. The swab should be taken to the laboratory as soon as possible although, if it is kept moist by contact with a little sterile saline at the foot of the test tube, the organisms will remain viable for 24 hours. This may be taken or sent to a bacteriological laboratory for inoculation on Bordet-Gengou media. The blood picture is also of great help in the diagnosis of whooping cough and should be investigated more often than it is. In the early catarrhal stage there is a leukopenia, but in the late catarrhal or early paroxysmal stage there is a rapid rise in white cells, with a relative lymphocytosis. A white cell count of over 20,000 with a lymphocytosis of 70-80 percent, in a child with a suspicious cough is very strongly suggestive of pertussis.

When enteric fever is suspected in an ill patient, admission to the hospital must not wait on the bacteriological report, but the

characteristically insidious onset of the disease often makes an early clinical diagnosis extremely difficult. It is at this state that the laboratory can be of the greatest help to the practitioner, and its aid should be sought in any fever lasting more than 3 days without obvious explanation. It is not sufficiently widely realized that the most certain way of isolating the infecting organism during the first week of the illness is by blood culture, at a time when the initial constipation of the patient may delay the collection of a specimen of feces. By taking an early blood culture, therefore, the general practitioner may save a few valuable days in diagnosis, and thus contribute greatly to the protection of the public health. The Widal reaction or the agglutination reaction, although it does not usually become positive until the second week of the illness, should be carried out in the first week if the patient has been previously inoculated with vaccine, so that in a subsequent examination a significant rise in the titer may not go unnoted.

The importance of the early examination of the feces in all types of intestinal infections should not require emphasis, but is too often forgotten; it must be borne in mind, also, that in mild cases of Sonne dysentery which do not require hospital treatment, the feces must be examined at regular intervals until several consecutive negative reports are obtained, since the excretion of dysentery bacilli may continue for over a month after clinical recovery. The convalescent carrier is the chief factor in the spread of Sonne dysentery, and by impressing on him the significance of the carrier state and the need for strict attention to personal hygiene, the general practitioner can do much to lessen the instance of this disease. The practitioner must also regard a case of Sonne dysentery in a household not as an isolated happening, but as something which may infect the whole family and the investigation of the family contacts must never be omitted. The rectal swab will be found most convenient for the collection of such specimens.

Far too many specimens of sputum sent to the laboratory are unsatisfactory, both in quantity and quality. The examination

of a meager amount of salivary fluid, produced on short notice in the practitioner's consulting room, is a waste of the pathologist's and laboratory personnel's time, and a negative report merely gives a false sense of security. The specimen to be examined should be the first sputum coughed up in the morning; cultures of the concentrated deposits from three consecutive morning specimens greatly increases the chances of finding scanty tubercle bacilli and should be more frequently employed. Similarly, the examination of urine for tubercle bacilli should be carried out on the deposits from the total urine passed in 24 hours, and not on the small amounts which suffices for a diagnosis of urinary tract infections. A large gallon bottle for collection of the urine can usually be obtained from any laboratory. When this is impractical, a specimen of morning urine should be sent.

The examination of blood may be of material benefit in a wide host of diseases ranging from anemias to the acute infections. The value of the white count needs little emphasis, and it may be collected at the bedside with a pipette and carried to the office in a number of ways, or blood samples may be drawn and placed in small bottles containing powdered anti-coagulants sufficient to prevent coagulation. The blood smear, however, is best prepared after a finger prick at the bedside, this may then be stained by the simple Wright's technique and studied under the microscope. Much concerning anemia may be learned by studying the morphology of the red cell, the status of the platelets may be determined and the type and number of white cells may be determined. Blood films prepared from oxalated blood are unsatisfactory for the differential leukocyte count. In my opinion hemoglobin determinations are most practically carried out in an office laboratory by the Haden-Hauser method. It is to be emphasized that this method has an experimental error of plus or minus 10 percent. In cases of the more severe blood dyscrasias, blood should be collected in specially prepared anti-coagulant bottles which may be obtained from a laboratory and taken to the laboratory for pack cell volumes, and more reliable photo-electrically determined hemo-



globin estimations.<sup>5, 6</sup> In these cases the blood film should be obtained at the bedside from a finger prick.

The physician should avail himself of the facilities rendered by the regional and central state health laboratories as well as the facilities of the USPH laboratories. Many of the virus and rickettsial diseases are now best diagnosed by drawing two samples of blood, one during the early phase of the disease and one late in the disease, and sent in to laboratories for viral complement fixation and neutralization studies. In 1948, Smadel<sup>7</sup> published an excellent article on this subject in the J. A. M. A.

The biopsy of lesions of the skin, mouth, cervix and rectum should be practiced more widely by the general practitioner. These may be taken in the office and placed in 10 percent formalin, alcohol or Zenker's fixative and sent by mail or messenger to the pathological laboratory. Let me make a plea for more adequate biopsies particularly of cervical tissue. These are easily taken with simple biopsy forceps and at least three or four bites should be taken from various locations about the cervix. Skin lesions are particularly deceiving, and I frequently emphasize to our house officers that not even dermatologists can always distinguish between moles, warts, hyperkeratosis and early skin malignancies.

Let me urge more cooperation between you men in practice and your pathologists. By telephone conversations or a visit by the laboratory, much helpful information can be obtained and specific tests which may be

carried out can be decided upon and determined as a result of a few minutes discussion.

Medicine is becoming less empirical and more scientific all the time, and in order to properly apply in practice the body of results obtained by the workers in research it is necessary for the general practitioner to become more familiar with these results and to develop a truly scientific approach to their practical application. He must become a better observer of disease than hitherto and he must approach his diagnostic and therapeutic problems with a greater critical sense than ever before. Inbred with this fresh interest he will always find that the laboratory offers very valuable assistance, because of its objectivity in the study of disease.

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## DOCTOR:

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*The various liver function tests may be helpful in the diagnosis and prognosis of diseases of the liver. However, since they are tests of specific functions of the liver their use should be selective. The author has brought out these features of the several tests.*

## LIVER FUNCTION TESTS: THEIR APPROPRIATE SELECTION IN DIAGNOSIS AND PROGNOSIS

CHARLES P. WOFFORD, M.D.,\* Johnson City, Tenn.

The general practitioner, surgeon and internist alike are confronted frequently with one of the most difficult diagnostic problems, the differential diagnosis of jaundice. This is such a broad subject that it can be extremely complex. Some cases certainly are difficult, but the problem can be simplified to such an extent that the correct diagnosis can be reached in almost all cases if the selection of diagnostic studies is based on sound principles. It is the purpose of this paper to present a simplified scheme to help in the selection of the appropriate tests.

The clear-cut case may require no help in addition to that secured by an adequate history and physical examination. Even with the most elaborate tests and diagnostic facilities nothing is more important than a painstaking history and a careful physical examination. To be sure there are many cases of jaundice which cannot be clarified without other diagnostic aids. These run the gamut of numerous chemical determinations, gastric and duodenal drainages, stool examinations, X-ray studies, needle and visually-supervised biopsies.

The literature is replete with excellent articles summarizing the merits of individual laboratory tests and discussing the various other procedures in detail. The various types of jaundice likewise have been described exhaustively in the current literature and in textbooks. Many articles have given suggestions as to the selection of appropriate studies for the different types of jaundice. This discussion will be limited to laboratory tests alone, and only those tests which are practical and essential will be discussed at any length.

Before considering them it might be pertinent to keep in mind three important facts

concerning liver function. In the first place the liver performs at least seven distinct metabolic functions, according to our present state of knowledge, and almost every test is designed to reveal abnormalities in just one particular function. In the second place a large percentage of liver tissue must be damaged before any alteration will appear in most tests. Finally, the liver has tremendous regenerative powers so that an abnormal finding in a certain test may revert to normal in a matter of one or two weeks, thus making the time element important in performing tests.

The earlier the tests for hepato-cellular damage are performed in a patient with this type of liver disease the more likely are the tests to be positive and to be of assistance in establishing the etiology. This cannot be stressed too strongly. Likewise, in obstructive jaundice, the early performance of tests may give a clear cut picture, such as a rising serum bilirubin with negative tests for hepato-cellular damage, whereas tests performed later may show evidence of considerable hepato-cellular damage as well, and thus cloud the picture.

Consideration of hemolytic jaundice rightfully belongs in the province of hematology and will not enter into this discussion because the diagnosis is relatively easy if one keeps it in mind as a possibility. The liver function tests are of little real help in this connection except as will be mentioned later.

In order to orient the tests with the various aspects of liver function, chart I is presented and is arranged with the more practical ones in the first column and the less frequently used ones in the second column.

Liver function tests may be placed in one of four categories as shown in chart II. The purpose for which the test is to be

\*From the Wofford-McKinnon Clinic, Johnson City, Tenn.



## Chart I

## Liver Function Tests

## Most practical      Less frequently used

- |      |  |                          |
|------|--|--------------------------|
| I    | <i>Bilirubin Metabolism</i>                    |                          |
|      | 1. Van den Bergh                               | 4. Bilirubin tolerance   |
|      | 2. Icterus Index                               |                          |
|      | 3. Urobilinogen                                |                          |
| II   | <i>Excretion</i>                               |                          |
|      | 1. Bromsulfalein                               | 2. Azorubin              |
|      |  | 3. Rose bengal           |
| III  | <i>Carbohydrate Metabolism</i>                 |                          |
|      | 1. Galactose tolerance                         | 2. Glucose tolerance     |
|      |  | 3. Levulose tolerance    |
|      |  | 4. Lactic acid tolerance |
| IV   | <i>Protein Metabolism</i>                      |                          |
|      | 1. Plasma protein and A/G ratio                | 5. Amino acid tolerance  |
|      |  | 6. Takata-Ara            |
|      | 2. Prothrombin level and response to vitamin K | 7. Colloidal gold        |
|      | 3. Cephalin-cholesterol flocculation           |                          |
|      | 4. Thymol turbidity                            |                          |
| V    | <i>Lipid Metabolism</i>                        |                          |
|      | 1. Cholesterol                                 |                          |
|      | 2. Cholesterol ester—total cholesterol ratio   |                          |
| VI   | <i>Detoxification</i>                          |                          |
|      | 1. Hippuric acid synthesis                     | 2. Cincophen oxidation   |
| VII  | <i>Water Metabolism</i>                        |                          |
|      |  | 1. Water tolerance       |
|      |  | 2. Water retention       |
| VIII | <i>Miscellaneous</i>                           |                          |
|      | 1. Phosphatase                                 |                          |
|      | 2. Methylene blue                              |                          |

used is of course of prime importance before considering which ones might be applicable. The subsequent charts list those which will be most helpful for that particular phase of the problem, in some cases illustrating in a gross but easy-to-remember fashion what might be expected of the tests. Several of the procedures will be discussed in some detail to make for a clearer understanding of their mechanism and their use.

## Chart II

## Purpose for Which Test Is to Be Used

1. Determination of latent or incipient jaundice
2. Determination of etiology
  - a. Hepatocellular (parenchymatous)
  - b. Obstructive
  - c. Hemolytic
3. Immediate prognosis and course of the disease
4. Long-range prognosis

## Van den Bergh Test

This is actually a measure of the concentration of bilirubin in the blood serum. There are two types of bilirubin chemically—one which reacts immediately with the diazo reagent used in the test, and the other which reacts only after the addition of alcohol. The significance of these two types lies in the fact that passage of bilirubin through the parenchymal cells of the liver effects a chemical change which alters its reactivity. Bilirubin which accumulates in the blood due to liver cell damage has not passed through the parenchymal cells and has not changed chemically. This type requires the addition of alcohol before the reaction proceeds and is called indirect reacting, or an indirect Van den Bergh reaction. The direct reacting bilirubin has passed through the liver cells and has been altered so that the reaction is immediate. This is called a direct Van den Bergh reaction. In obstructive jaundice the block is not at the parenchymal cell level but is in the duct system. Bilirubin passes through the liver cells and into the bile capillaries but due to the increased pressure there, some of it finds its way back into the circulation and hence this bilirubin is of the direct reacting type. It should be remembered that this sharp differentiation applies only to the early stages of jaundice, for after the obstruction lasts a few days, the increased intraductal pressure will cause damage to the parenchymal cells and prevents the passage of bilirubin from the blood through the cells, so producing an increase in the indirect reacting bilirubin.

## Icterus Index

This test is based on a color comparison of the serum with a standard solution of potassium dichromate. It gives a fairly good rough index of the level of serum bilirubin provided the three main sources of error are kept in mind; namely, hemoglobinemia, lipemia and carotinemia.

## Chart III

## Diagnosis of Latent or Incipient Liver Disease

1. Bromsulfalein
2. Cephalin-cholesterol flocculation
3. Urobilinogen
4. Hippuric acid synthesis
5. Van den Bergh and icterus index

## Urobilinogen

Bilirubin reaching the bowel is converted to urobilinogen by the action of colon bacilli. Some is reabsorbed and carried via the portal system to the liver, where most of it is re-excreted in the bile. Some, however, is not re-excreted and goes into the general circulation, thence into the urine. In hepato-cellular damage less is re-excreted; hence more accumulates in the blood and more is passed in the urine. In obstructive jaundice no bilirubin reaches the bowel and accordingly none is found in the stool or urine. Likewise, during the height of acute liver cell damage, such as is seen in a severe case of infectious hepatitis or serum hepatitis, there is suppression of bile flow with a consequent absence of urobilinogen in the stool and urine. A secondary rise in urinary urobilinogen in the course of infectious hepatitis is indicative of a return of function of the parenchymal cells and usually heralds the convalescent stage. In cirrhosis the urobilinogen is high, as a rule. In hemolytic jaundice there is liberation of large quantities of bilirubin and accordingly large amounts of urobilinogen will be found in the urine.

## Bromsulfalein Test

This is one of the excretory function tests. It is easily performed by injecting intravenously 5 mg. of the dye per kilo of body weight, and collecting a blood sample at the end of 45 minutes. Normally the liver clears the blood of the dye in this time. If the patient is not icteric, retention indicates the presence of hepatic disease such as cirrhosis, liver abscess, metastatic carcinoma, gall bladder disease, hepatitis, etc.

### Chart IV

#### Tests of Value in Ruling Out Cirrhosis

- I. Those of most value
  1. Bromsulfalein
  2. Hippuric acid synthesis
- II. Those of lesser value
  1. Urobilinogen
  2. Cephalin-cholesterol flocculation
  3. Thymol turbidity
  4. Plasma albumin

## Galactose Tolerance

This test of carbohydrate metabolism is positive when there is impairment of an appreciable mass of hepatic cells, such as is seen in acute toxic, degenerative or inflammatory processes. It is especially valuable *early* in the disease. After two weeks enough regeneration of liver cells often occurs to render the test negative. A positive reaction is one in which more than 3 Gm. of galactose are excreted in the five-hour quantity of urine following the ingestion of 40 Gm. of galactose.

## Plasma Proteins and A/G Ratio

A decrease in total plasma proteins or a reversal or alteration of the A/G ratio often will be detected when a considerable mass of liver cells is nonfunctioning, such as in cirrhosis, because the liver is the site of albumin formation.

## Prothrombin Level and Response to Vitamin K

Two separate functions of the liver are reflected by this valuable test. One is the functional integrity of the liver cells themselves, for prothrombin is formed there, and a definite decrease in the prothrombin level can be interpreted as indicating damage to a sizable mass of liver tissue. This applies, provided one is sure that vitamin K is reaching the liver for it is necessary to effect the formation of prothrombin and it can be absorbed from the gastrointestinal tract only in the presence of bile acids. Hence the second function is reflected, namely the excretion of bile. The prothrombin level therefore will be decreased in obstructive jaundice and in advanced liver damage. In a case of obstructive jaundice with a decreased prothrombin level, parenterally administered vitamin K will produce a return to normal. If the jaundice is on the basis of liver cell damage, however, there will be no alteration after giving parenteral vitamin K because the fault lies not in the materials with which to form prothrombin but in the capabilities of the liver cells themselves.



**Chart V**  
**Differentiation Between Obstructive and**  
**Hepatocellular Jaundice**

	<i>Obstructive</i>	<i>Hepatocellular</i>
Cholesterol	+	0 or $\pm$
Serum alkaline phosphatase	+	0 or $\pm$
Prothrombin response to vitamin K	+	0 or $\pm$
Cephalin cholesterol flocc.	0	+
Thymol turbidity	0	+
I. V. galactose tolerance	0	+
Hippuric acid synthesis	0	+
Cholesterol ester	0	—
Icterus index and Van den Bergh	+	+

(0 = normal values for the test  
+ = increased or abnormal values)

**Cephalin-Cholesterol Flocculation**

Here, so to speak, protein metabolism in the liver cells is measured. The reaction on which this test is based is dependent on some change in the globulins of the serum which allows them to fix or precipitate the colloids of the suspension. A positive test indicates liver cell damage.

**Thymol Turbidity**

The test reflects the elevation of serum lipids and the increase in the globulin fraction. It has essentially the same significance as the cephalin cholesterol test but is thought to be even more sensitive in detecting the presence of continued liver damage in mild non-icteric hepatitis and in anticipating relapses.

**Chart VI**  
**Detection of Liver Injury Secondary to**  
**Biliary Obstruction**

Hippuric acid	+
Cephalin cholesterol flocculation	+
Cholesterol ester	—
Prothrombin response to vitamin K	0

**Cholesterol and Esters**

This is more valuable as a prognostic than a diagnostic test, but it is helpful even in the latter. In obstructive jaundice there is an increase in cholesterol. If an increase is not present, there is probably coincident liver damage. The percentage of esters remains the same in uncomplicated obstructive jaundice. In hepatocellular jaundice there is no rise in cholesterol but there is a decrease in esters. The ester content rises as recovery progresses.

**Chart VII**

**Tests for Following the Progression of Jaundice**  
Quantitative Van den Bergh  
Icterus index  
Urobilinogen

**Hippuric Acid**

This is formed in the liver by the conjugation of the benzoate radical with glycine. Hence the amount of hippuric acid formed is a measure of hepatic function. A decrease in output indicates marked liver damage as in hepatitis, cirrhosis, metastatic carcinoma, etc. The output is normal in biliary obstruction.

**Serum Alkaline Phosphatase**

These enzymes are excreted in the bile. Hence, there is an elevation in the serum in obstructive jaundice. Occasionally there is some elevation in hepatocellular jaundice.

**Chart VIII**

**Tests for Detecting Residual Liver Damage and**  
**Continued Activity of Hepatic Disease**

Urobilinogen  
Bromsulfalein  
Cephalin cholesterol  
Thymol turbidity  
Cholesterol ester

**Methylene Blue Test**

This is a simple test to perform and its significance parallels that of the quantitative urobilinogen. It indicates the presence of acute hepatic degeneration. It may become positive from one to six days before clinical jaundice and even before hyperbilirubinemia is detected.

**Conclusion**

This simplified summary of the mechanism, value and limitations of the more important liver function tests has been presented with the expressed hope that it will make this subject clearer in the minds of all physicians who are confronted with the differential diagnosis of jaundice. The charts have been arranged to afford a concise reference in selecting and interpreting the most appropriate tests.

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**Prevention of Degenerative Vascular Lesions in Young Patients by Control of Diabetes. Wilson, J. L., Root, H. F., and Marable, A. *Am. J. M. Sc.*, 221: 479, 1951.**

There has been a considerable debate relative to the reasons why retinal vascular lesions develop in the diabetic. In 1947 Dolger reviewed the findings in the fundi of 200 patients. There were changes in the retinae and retinal vessels in every patient who had diabetes for as many as 6 years, regardless of the completeness of control of the diabetes. For this reason there are some who suggest that there is no virtue in efficient control of diabetes. They believe only minor effort need be exerted since the retinal and arteriolar changes are certain to develop.

A contrary opinion is held by others. Among this group, are Wilson, Root and Marable, of the Deaconess Hospital in Boston, Massachusetts. They studied 247 patients who had diabetes for at least 10 years. All of the patients underwent stringent physical examinations, complete laboratory surveys, and consultations were held with skilled ophthalmologists. Competent radiologists made special films searching for evidence of arteriosclerosis in the great vessels in the chest and abdomen and the larger vessels of the legs.

Of the 247 patients only 7 had been in excellent control, 30 under good control, 5 under fair control and 159 were classified as being in poor

control. It was of interest that 92% of the patients had the onset of their diabetes before the age of 24. Almost 42% of the patients had had diabetes for more than 20 years.

The data were analyzed for the influence of the diabetes on the educational achievement and the occupational accomplishment. There were 114 pregnancies among 61 of the female patients.

No patient with excellent or good control showed advanced calcification or retinitis even after the diabetes had existed for 20 to 34 years. No diabetic nephropathy developed in patients with good or excellent control. In 89 patients no retinal hemorrhage or retinitis was present; 35 of these 89 had diabetes of more than 20 years duration. Of the 54 patients with marked retinitis, only 5 were under good control and none under excellent control. No patient with good or excellent control developed degenerative kidney disease even after periods of 20 to 34 years of diabetes. Among the 210 patients with fair or poor control, 62 had renal disease and 13 of these died during the year of this study.

The authors conclude that good control of the diabetes is unquestionably the most important factor in preventing retinal, vascular and degenerative renal lesions.

(Abstracted for the Tennessee Diabetes Association by Albert Weinstein, M.D., Nashville.)



*The patient having a painful shoulder is found in every doctor's office. Commonly he "shops around" in the hope of getting relief. The author clearly outlines what should be done for the patient in his pain or discouragement.*

## PAINFUL SHOULDERS

### Periarthritis\*

HUGH SMITH, M.D., Memphis, Tenn.†

Periarthritis—a general term loosely applied to a substantial group of closely related conditions—may severely cripple a shoulder and cause a lot of misery. The tendency toward spontaneous recovery does not detract from the necessity of adequate and prompt treatment. Pain and disability are frequently severe and may last for days, weeks, or months. Though response to therapy is frequently slow, most of these patients get relief from pain and a functional shoulder; a few retain a painful stiff joint; some are cured.

The nomenclature of these shoulder lesions is confusing. Only a decade or so ago, the term bursitis seemed adequate. Now, the term periarthritis is more descriptive and accurate, since any or all of the joint structures may be involved. Regardless of diagnostic terms, we recognize this common clinical entity, the acute or insidious onset of pain about the shoulder that may extend up into the neck, over the scapula, or more frequently down the arm to the insertion of the deltoid. A variety of tender areas may be elicited, but the most painful and the most common is over the insertion of the supraspinatus tendon. In the acute cases motion is limited by pain and muscle spasm. If this condition exists long enough, adhesions form in the movable structures, perhaps even to the point of ankylosis. Based on the duration of symptoms, the type of onset, and the cause and amount of limited motion, these cases class themselves easily into three clinical groups—acute, subacute, and chronic. Periarthritis occurs most commonly in the fourth and fifth decades of life, in women and in the left shoulder.

The evolution of the shoulder from the

stable, heavy-duty joint of the early primates to the highly mobile, universal joint of man is partially responsible for periarthritis. While subacromial bursitis, tendinitis with or without calcification, synovitis, adhesive capsulitis, arthritis, atrophy, and osteoporosis are all terms that enter into the pathology of so-called periarthritis and may exist simultaneously or in various combinations, present concepts emphasize lesions of the tendinous cuff as the more common, primary offender. This horseshoe shaped structure, made up of the subcapularis, supraspinatus, and infraspinatus—teres minor tendons, is important to smooth, rhythmical scapulo-humeral movement. Any factor that adversely influences its function of "scotching" the humeral head against the glenoid reflects as a major disability, viz., pain, weakness, limited motion. The keystone of this cuff is the supraspinatus tendon. With the shoulder in neutral rotation, viewed from the side, the supraspinatus tendon occupies the area between 11 and 1 o'clock. As a consequence it is under tension from all directions. The capsule and synovial lining of the shoulder joint lie under the supraspinatus tendon; above it is the subacromial bursa. The latter, under normal conditions, is the lubricating structure between the tendon and the acromion. The amount of clearance, at best, between the acromion and tendon is sparse, and in abduction there is definite impingement of the bone upon the tendon. Blood supply of all tendinous structures is relatively poor as compared with other soft tissues. With trauma, time, tension and decrease in blood supply, tendinous structures lose some of their elasticity and tensile strength. The supraspinatus tendon is in the unfortunate position of being sub-

\*Read before the Tennessee State Medical Association, Nashville, April 10-11, 1951.

†From the Campbell Foundation, Memphis.

jected to a maximum of all factors that might lead to its early degeneration.

Translating the anatomic and physiologic factors into pathogenesis, we find that the process of degeneration in the tendon directly involves adjacent structures in an inflammatory reaction, particularly the subacromial bursa. Calcium deposits may occupy one or many areas in the tendon. This is supposedly a frustrated and abortive attempt to fill a defect created by degeneration. In acute lesions, calcium is suspended in fluid under such tension as to cause terrific pain. The course of an acute calcified area may be either of the following: (1) the tension (and symptoms) are promptly relieved by spontaneous or surgical rupture of the encapsulated calcium into the subacromial bursa; (2) tension (and symptoms) subside gradually as the fluid is absorbed—the calcium progresses from a fluid to a toothpaste consistency and eventually into a hard, rock-like structure. Chronic, hard calcium deposits deeply buried within the tendon may be relatively innocuous and painless. If they protrude above the surface of the supraspinatus tendon into the bursa, mild to moderate pain and limitation of motion may persist. Catching sensations and pain in certain ranges of motions, particularly abduction and rotation, are a logical sequence of this pathology. Clinical manifestations are usually of a subacute nature.

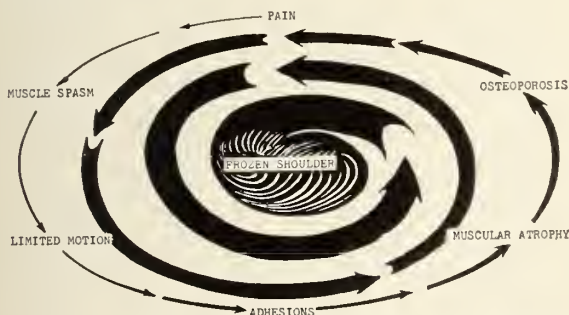


FIGURE 1. The vicious shoulder cycle. Treatment is directed toward interruption of this vicious series of events. Reversal of this cycle produces the functional joint; continuation of the cycle eventuates in a frozen shoulder.

The frozen shoulder represents the culmination of a vicious cycle. (See Figure 1.) One or two turns around this cycle doesn't insure an ankylosed joint. If allowed to go on uninterrupted, however, immobilization of the joint by pain and muscle spasm will

eventuate in adhesions between any or all of the structures that move the shoulder. The same thing may occur following immobilization of the shoulder for a fracture of the surgical neck of the humerus, or following a dislocation, or a fractured clavicle.

Pathology, physiology and clinical manifestations closely parallel each other and explain the tendency toward spontaneous recovery. The cycle is as follows: with degeneration of the tendon, pain reflexly produces muscle spasm—nature's automatic splinting mechanism. Immobilization of the shoulder by muscle spasm produces a situation favorable to healing and repair, but unfavorable in these respects—muscular atrophy, osteoporosis, and adhesions. If healing occurs before the unfavorable factors are well advanced, the cycle reverses itself; with more healing, less pain; with less pain, less muscle spasm; with less spasm, more mobility; with more mobility, improvement in muscle power and bone density. Since nature is rather unpredictable, treatment is directed toward interruption or reversal of the cycle by relieving pain and restoring motion. With relief of pain, rehabilitation measures to restore function are likely to be successful unless pathologic anatomy is so far advanced as to be irreversible, viz., a fulminating adhesive capsulitis.

For the relief of pain the following measures are available: novocaine injections, roentgen-therapy and cortisone; if calcium deposits are present, needling and aspiration, or surgical incision and curettage. Splinting of the shoulder in a functional position is an adjunct to the above measures, but should be used only during the most acute phase of the disease. For restoration of motion and function, we must rely principally upon physical therapy in the form of heat, massage, and active and passive stretching exercises, rarely manipulation. Obviously it is not necessary nor desirable to apply all of these measures simultaneously. The stage of the disease and the facilities that are available must to a degree determine the most desirable combination. Subsequently, we shall try to outline the indications for each as under certain circumstances one has an advantage over the others.



Patients with acute lesions walk the floor for only a few days and nights before realizing that "the pain won't wear off." Symptoms are sufficiently severe so that they seek help before irreversible scarring has occurred. Motion may be limited to a very few degrees, but this is attributable principally to muscle spasm, not to adhesions. If pain is adequately relieved, normal motion and function usually return rapidly, perhaps in a week or ten days. If X-rays are negative for calcium deposits, novocaine injections or X-ray therapy are equally effective. The shoulder should be splinted for a few days during the most acute phase of the pain and thereafter the regime of physical therapy should follow. If X-rays reveal a fluffy calcification resembling a small cumulus cloud, novocaine injections and needling are likely to produce a prompt and desirable effect.

The needling technic is carried out as follows. One finger palpation is the most accurate way of localizing the lesion. Mark this spot on the skin and subsequently keep the shoulder in a fixed position, since rotation changes the location of the calcified area away from the mark on the skin. After surgical preparation and draping, introduce a small caliber needle as illustrated in Figure 2. Continually inject novocaine as

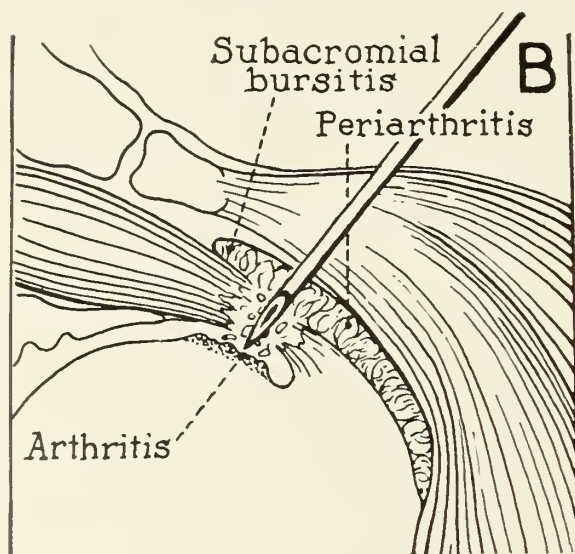


FIGURE 2. Technic of needling a calcified mass in supraspinatus tendon.

the needle proceeds deeper. With experience one develops a sense of "feel" as the needle enters the calcified deposit. Crepitus

is elicited, producing the sensation of two rough pieces of sandpaper rubbing together. Further evidence that the needle is in the correct location comes from the patient,—exquisite pain. Since pain is the direct result of tension, the introduction of additional novocaine into the calcified deposit temporarily causes an intense exaggeration of symptoms. Leaving the original needle in place, a second needle is utilized to infiltrate thoroughly the surrounding tissues with novocaine and finally into the calcified deposit. If the calcium is in a liquid suspension, absolute proof is provided by aspirating rather substantial quantities of calcium by barbotage and rarely by washings through the second needle. The failure to obtain calcium does not indicate failure. Calcium of toothpaste consistency cannot be aspirated, but a few grains of calcium in the syringe help to establish location. In any event the area of calcium deposit should be pierced in multiple areas, viz., make a veritable pin cushion of the involved portion of the supraspinatus tendon, thereby insuring multiple holes through which the calcium can escape to an area of blood supply and thereby be eradicated.

Most of the subacute lesions do not go through an acute stage, otherwise the patient would have sought aid sooner; rather the pain and disability is of mild to modest proportions, but has been present for several weeks or months. Frequently the shoulder is a fairly functional member, with a fair range of flexion and extension. Pain may not interfere with sleep but is exaggerated by the extremes of rotation and abduction or by one or more movements necessary to the patient's business or housework. As long as the symptoms related to the shoulder are of modest proportions and the range of motion is gradually increasing, X-ray therapy followed by physical therapy is adequate.

For the more disabling and obstinate subacute lesions, a different regime must be outlined. In this group, adhesions of minor proportions may stubbornly resist the attempts of the physical therapist to restore a functional range of rotation and abduction. For these, manipulations under anesthesia may rarely be indicated. Because of

some undesirable complications and some rather poor end results, manipulation of the shoulder is no longer a very commonplace or popular procedure. It offers only a rather thin line between curing adhesions on the one hand and inciting a reaction in the joint, such that pre-existing motion is lost and a firm, fibrous ankylosis established on the other. To quote from Watson-Jones, "The stiffer the joint, the less valuable is manipulative treatment; the more movable the joint, the more valuable is manipulative treatment." Consequently, manipulation of the shoulder should be limited to those subacute cases with a very useful range of flexion and extension and with minimal adhesions that limit the useful range of abduction and rotation.

Calcified deposits in the subacute group have usually been present for weeks, months or perhaps even years. It is quite possible for a very large calcified deposit to be present and cause minimal symptoms. Needling is inadequate to break up the rock-like structure sufficiently for absorption. If the conservative measures prove to be inadequate, surgical intervention is in order. The supraspinatus tendon is exposed, the thickened, scarred subdeltoid bursa excised, and the calcified masses in the supraspinatus tendon incised and curetted. Simultaneously under direct vision, the shoulder can be manipulated provided the indication is present as outlined above.

Patients with chronic peri arthritis ("frozen shoulder," adhesive capsulitis) are the most discouraging group. Response to treatment in any individual case is unpredictable. At least 30 percent will have poor functional shoulders, and those who eventually obtain a good result must go through a prolonged regime of treatment. Some of these frozen shoulders are the end result of a rapidly fulminating process that begins acutely and is totally unresponsive to measures designed to combat pain or impending ankylosis. At times, any treatment seems to accelerate or exaggerate the process. More commonly, symptoms begin insidiously and over a period of six months or more, the shoulder gradually "freezes." Many of these patients are going through the menopause and this in combination with

the "frozen" shoulder represents a real problem. In addition to measures for the menopause, X-ray therapy and a patient, intelligent physical therapist are of inestimable value. "Pace" is an important factor in prescribing exercises. This peculiar facility is gained only by experience. Too much exercising on a given day and a shoulder becomes so sore that motion gained over a period of the previous weeks may be quickly lost. If, however, active and passive stretching exercises are not carried out rather assiduously and vigorously, motion returns slowly or not at all. These patients are easily discouraged and are prone to give up if measurable degrees of progress are not evident. At best, they must go through months of hard work to achieve anything that faintly resembles a normal shoulder. Only those with fortitude and some degree of perseverance will achieve their goal.

Cortisone is a recent addition to the treatment of peri arthritis. No one, however, can quote statistics from any sizeable group of cases and our experience is limited. In using cortisone two statements should be kept in mind. "Cortisone can mask the symptoms of everything except death." "Cortisone can reverse pathologic physiology, but not pathologic anatomy." Even a wonder drug cannot eradicate the scarring which follows a prolonged siege of peri arthritis. It is an encouraging adjunct however, in subacute and chronic cases, to other lines of therapy and we expect to pursue this line of treatment for a while until we know more about it. Possibly cortisone directly affects the shoulder by softening up the adhesions and at least permits the beginning of a reversal of the "frozen" shoulder cycle. Certainly a big factor is a euphoric mental state which some patients experience, almost as if a prefrontal lobectomy had been performed. During this stage a physical therapist can institute a very rigorous routine and make sufficient progress before withdrawal of the cortisone so that the shoulder will subsequently respond to physical therapeutic measures alone.

A review of therapy reveals that physical therapy is the only form of treatment that



is common to all stages and types of peri-arthritis. Consequently it assumes importance. An extensive array of equipment is not necessary and, though very desirable, a trained physical therapist is not indispensable except for the more complicated cases. However, someone must assume the responsibility for teaching these patients how to bake and massage their shoulders, and impress them with this fact, baking and massage won't restore motion, rather it must be exercise, exercise, exercise. Codman exercises are simple and effective. With two or three pounds suspended from the wrist, and the spine flexed, the shoulder joint—not the shoulder girdle—can be exercised by side to side, forward and backward, and circumduction movements without fighting the forces of gravity. Simple pulley arrangements and wall ladders can be rigged up at home to supplement the Codman exercises. For the chronically affected shoulders, a home physical therapy set-up is mandatory since response will be slow, and few people can afford prolonged hospitalization or the services of a physical therapist until they are well.

When treatment is rather non-specific as in peri-arthritis, attention to small details is important. The results come slowly most of the time, but 80 percent of these patients will recover if the doctor and the patient do not get impatient.

#### Discussion

H. O. BOURKARD, JR., M.D., (Knoxville): Mr. President, ladies and gentlemen: First, I would like to compliment Dr. Smith on his excellent presentation. I feel that relief of pain is the most important feature of treatment, no matter what stage the shoulder is in, either acute, subacute or chronic. The reason for this is twofold: (1) most often the

presenting chief complaint is pain, and (2) rehabilitation of the shoulder through physiotherapy can be carried out in any stage after the pain has been relieved. If the shoulder remains painful the secondary muscle spasm will prevent good rehabilitation by any means.

In our experience the acute, painful shoulders with calcification are those that demand immediate relief of pain and it has been our practice to attempt needling on several occasions, although very often the symptoms recur and the patient has a very severe, painful period for forty-eight to seventy-two hours. We have not hesitated to evacuate surgically the calcified deposit in those cases presenting very severe, acute symptoms, and have gotten prompt relief of the deep, unbearable, boring pain. The patients are grateful for this relief of the severe pain and physiotherapy can be started in the form of gentle exercises within a few days.

At the time of surgery, I feel that it is important to inspect the entire shoulder cuff as well as possible, as these deposits very often are multiple, although generally one can be seen to be inflamed and probably is the one giving the acute symptoms. In the subacute and chronic stages, where the patient's pain does not demand immediate action of some sort for relief, we have gotten good results by using X-ray therapy but this, of course, takes a longer period of time, usually four to six weeks, to get the maximum benefit. The severe, painful shoulders without calcification are those that have always given us the most trouble in the past and were the ones in which any form of therapy had been disappointing. The advent of the use of cortisone and ACTH in these cases certainly gives us good hope of relief of pain so that we can carry on rehabilitation of the shoulder. We have used this in two cases with good relief of pain within thirty-six hours. However, we have not followed the cases long enough to evaluate them, although we are thankful to have something with hope of good relief of pain. We have not used excision of the acromion in any of our cases, although I am sure that in some with chronic, long standing symptoms, it may be indicated.

Again I would like to compliment Dr. Smith on his presentation and thank you for the opportunity of discussing this paper.

# VANDERBILT UNIVERSITY SCHOOL OF MEDICINE, OBSTETRICAL AND GYNECOLOGICAL STAFF CONFERENCE\*

## Krukenberg Tumors

DR. DIXON N. BURNS: This patient was a 43-year-old white married female, nulligravida, who was admitted to Vanderbilt University Hospital on August 18, 1950, with the chief complaint of abnormalities of menses. There had been no vaginal bleeding for about 5 months, but prior to that time she had had irregular spotting for several days of each month.

The general physical examination was not unusual and pelvic examination revealed no abnormalities. Dilatation and curettage was done with the removal of one small piece of tissue from the uterine cavity; this was diagnosed microscopically as a benign endometrial polyp with slight hyperplastic changes. The only other discovery from examination under anesthesia was a firm irregular mass felt high in the rectum on the left side. No blood was present on rectal examination. A barium enema done before discharge from the hospital showed no demonstrable lesion.

One month later the patient was again examined. The tumor felt rectally had apparently increased in size and operation was recommended, but the patient postponed exploration against advice. There had been no further vaginal bleeding.

The second admission was on January 14, 1951, when the patient noted pain in the lower abdomen, and the presence of a mass, detected two months previously. The firm abdominal mass had progressively enlarged until it reached a point 5 cm. below the umbilicus. The other complaints were frequency of urination and a sensation of epigastric fullness following meals. No vaginal bleeding had been noted since the dilatation and curettage done 5 months previously. Pelvic examination revealed a large irregular firm mass filling the cul-de-sac and extending to within 5 cm. of the umbilicus in both lower quadrants. The uterus could not be palpated separately. The cervix was clean and no vaginal lesions were noted. The general physical examination was not remarkable. Urinalysis showed no cells, albumin, or sugar. Hemoglobin was 12.9 Gm.; and the Kahn was negative.

The following day exploration was carried out. Upon opening the peritoneal cavity two large greyish-pink solid tumors replacing both ovaries were readily visible. The larger tumor was on the left side and about 15 cm. in diameter; the right tumor was 10 cm. in diameter. The uterus and both tubes appeared normal grossly. On the posterior surface of both broad ligaments at the level of the internal cervical os were noted small raised lesions resembling implants of neoplastic tissue.

Palpation of the aortic nodes was done and several large firm glands were felt. A bilateral salpingo-oophorectomy and complete hysterectomy was done, with dissection of the nodular areas on the broad ligaments.

Before closure of the abdomen, examination of the liver, spleen, gallbladder, stomach, and kidneys was made. A firm irregular lesion 5 cm. in diameter was felt in the pyloric portion of the stomach, producing a partial obstruction. No ulceration of the serosal surface was seen. A posterior gastrojejunostomy was then performed and biopsy of the gastric lesion taken. Gastric resection was not done because of the wide dissemination of the tumor, convincing the operator that complete cure surgically was impossible. Postoperative treatment consisted of Wangensteen suction for 4 days, penicillin and streptomycin for 5 days. Condition at discharge 3 weeks later was good.

The pathological report read: "Sections from both ovarian masses show loose connective tissue and fat, some areas being myomatous in appearance, with acinar tissue present, lined by large mucous containing cells which have many nuclei pushed to the side resembling signet-ring cells. Portions of the tubal walls and a section of the mesentery of the stomach have the identical changes, which are typical of Krukenberg tumor."

Subsequent examination of the patient has shown no remarkable change in her condition and no further development of an abdominal mass. She has been able to take nourishment by mouth with no difficulty.

The first tumors of this type were reported by Krukenberg<sup>1</sup> in 1896 when he described five patients, giving the title of *fibrosarcoma ovarii mucocellulare carcinomatodes* to these lesions.

Schlagenhauer<sup>2</sup> pointed out in 1902 that these tumors were carcinomatous and not sarcomatous. Krukenberg tumors could be reproduced by secondary carcinoma from the abdominal organs. He was sure that the majority were secondary to tumors of other regions.

One hundred and fifty-five cases have been reported in the English literature up until 1945. Amreich<sup>3</sup> had collected 373 cases by 1931. He found the primary site to be as follows:

250	Stomach
32	Cecum or colon
17	Gallbladder and bile ducts
14	Rectum
9	Small intestine

Zeigerman<sup>4</sup> gave a case report in 1948 of Krukenberg tumor with osteoplastic metastases to ribs, clavicles, scapulae, humeri,

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and cervical vertebrae. Hagstrom<sup>5</sup> had a 33-year-old lady who was five months pregnant and died as a result of Krukenberg tumor in the stomach, ovaries, breasts, tubes, and pancreas. The youngest patient reported was a 14-year-old patient of T. L. Chapman.<sup>6</sup>

Copland<sup>7</sup> and Colvin<sup>7</sup> emphasize that metastases frequently grow rapidly and may actually represent the presenting symptoms rather than having the chief complaint due to the primary tumor. One of their patients had a 3 mm. growth on one ovary with intact tunica albuginea, leading them to believe that the spread was lymphatic. Though the primary site is often mucoid, scirrhous carcinoma may produce a typical signet ring appearance in the ovarian metastases, so that the primary lesion need not possess the same structure as the metastases. In any operation for carcinoma of the stomach, the surgeon should not say that there are no metastases until the ovaries have been carefully examined.

A few patients have been reported as having a primary Krukenberg tumor of the ovary. Andrews<sup>8</sup> described a case in a 50-year-old patient who was operated upon and survived 13 years with no difficulty. (Pathological diagnosis had been confirmed by Novak.)

Dockerty classified 500 solid tumors of the ovary as follows:

Adenocarcinoma (cystic and solid)	35%
Fibroma	30%
Gran. Cell Carcinoma	10%
Krukenberg	9%
Bremer, Sarcoma, Teratoma, and Funct. Tumors	15%

DR. CHARLES HUDDLESTON: How frequently is the Krukenberg tumor bilateral?

DR. BURNS: It is bilateral in 90 per cent of the cases.

DR. CLAIBORNE WILLIAMS: Is there a definite opinion concerning which lesion is primary, the one in the G.I. tract, or the one in the ovary?

DR. JOHN C. BURCH: I think it is pretty definitely known that the one in the G.I. tract is primary.

DR. G. S. MCCLELLAN: Usually with

the Krukenberg tumor you remove the ovarian masses simply to relieve the symptoms in the pelvis. The cure-rate, even with elimination of the original lesion, is fairly low. Isn't that the general impression?

DR. BURCH: That coincides with my impression. Cure of these patients is almost unknown. In this particular instance, the assumption is correct that the tumor is primarily in the stomach. The sections indicate that this is so. Then we have a neoplastic spread that extends down through the aortic nodes into the pelvis and bilaterally involves both ovaries; there are implants in the pelvis also. One interesting point is, how does the implant get from the stomach to both ovaries? If it were a seed metastasis, one would expect implants elsewhere in the pelvis—indiscriminate implants. However, it seems to spread by some lymphatic channel, a retrograde lymphatic progression. Now if there is that much retrograde lymphatic progression, there are bound to be tumor islets between the primary growth and the growth in the ovaries, and it is impossible to carry out a radical operation and remove all the tumor. Now, for that reason this tumor in the stomach was not resected. It was debatable whether or not to do a gastro-enterostomy. Careful examination revealed that there was very little passageway through the pylorus and there was some dilatation of the stomach, although the patient had no symptoms. I believe that events have proved that it was a wise decision, in view of the impending obstruction. Certainly the patient has done very well from the gastric standpoint.

DR. WILLIAMS: Isn't it generally true that gastro-intestinal symptoms are minimal as compared to the pelvic symptoms, although the primary site is in the G.I. tract?

DR. BURCH: Yes, that seems to be so. There was another case of Krukenberg tumor in this hospital not so long ago in which the primary lesion was in the pancreas. The lesion does not have to be in the stomach. The lesions can be in either the stomach, the intestines, or in any of the accessory intestinal glands, that is, the liver, the pancreas, or the gallbladder.

DR. EDWIN L. WILLIAMS: There was one interesting patient on the ward a few years ago, admitted on the medical service because of difficulty in swallowing. At the time of her investigation she was noted to have a lesion of the cervix. The cervix was hard and woody in consistency. Biopsy of the cervix revealed cells typical of Krukenberg tumor, and subsequently by doing an esophogoscopy, the tumor at the cardiac end of the stomach was isolated and biopsied and had typical characteristics of a primary carcinoma of the cardiac end of the stomach. An exploration of this woman's pelvis revealed bilateral Krukenberg tumors in the ovaries and Krukenberg tumor in the cervix down to the portio vaginalis.

DR. McCLELLAN: Does irradiation have any place in the treatment of this lesion?

DR. BURCH: I don't know, Dr. McClellan. We didn't recommend irradiation for this patient.

DR. McCLELLAN: It would be difficult to decide what site to irradiate.

DR. WILLIAM HEADRICK: I have always had the impression that anything one can feel in the rectum almost as far as one can reach with a sigmoidoscope, cannot be seen on a barium enema. If something is felt rectally, it does not usually appear on a barium enema and one might get a false feeling of security by doing a barium enema and having it reported as normal. Is that true?

DR. BURCH: To a certain extent, I think it is. Of course the barium enema should always be supplemented by a digital examination, and most of the time a sigmoidoscopic examination as well.

DR. BURNS: Here is an interesting statement about the frequency of Krukenberg tumors. Dockerty reported that out of his 500 solid neoplasms, Krukenberg tumors constituted 9 per cent of the solid ovarian tumors and fibromas 30 per cent. I certainly didn't think that Krukenberg tumors were one-third as common as fibromas.

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#### Myomas in the Childbearing Age

DR. ROBERT L. CHALFANT: This patient was a 25-year-old, white, married female, nulligravida, who was admitted to Vanderbilt University Hospital in June, 1948, with the chief complaint of "pelvic tumor." Her menstrual history consisted of menarche at 17 years of age, and slightly irregular periods, usually at three weeks intervals with scant flow. The present illness consisted of a period of sterility for 7 years of married life. A pelvic tumor was found at a recent physical examination. No other symptoms were present.

Physical: B.P. 110/70. Examination was essentially negative down to the pelvic examination. Positive findings consisted of a firm 4-5 cm. mass attached to and imbedded in the fundus in the region of the right cornu. Diagnosis of myoma of the uterus, subserous and sterility of unknown cause was made.

At operation the uterus was found to be enlarged to the size of a three months pregnancy, containing a tennis-ball size myoma in the right cornu. The ovaries and tubes appeared normal. A catheter was inserted through the broad ligament on each side at the level of the internal os, pulled tight, and clamped posteriorly to occlude the uterine vessels. Rubber-shod intestinal clamps were placed upon the infundibulopelvic ligament on each side to occlude the ovarian vessels. The tumor was then removed through a relatively bloodless field. The incision was closed with 0 chromic catgut and interrupted cotton. On conclusion of the operation the uterus was of average size.

The postoperative course was uneventful, and the patient was discharged on the ninth postoperative day.

The patient was again admitted to the hospital in December, 1949, 18 months after previous myomectomy, with the chief complaint of pregnancy. She was admitted two weeks prior to her expected date of confinement, of December 25, 1949, for delivery by cesarean section. At that time she stated that following the myomectomy her periods had become regular at 28 day intervals with 5-6 days of moderate flow. Her last menstrual period was March 18, 1949.

The patient's prenatal period was uneventful. On December 12, 1949, the patient was delivered by classical cesarean section of a 6 lb. 12½ oz. female. A classical section was necessary because



on opening the abdomen the uterus was found to be markedly dextrorotated, so that the attachments of the left broad ligament were located just to the right of the midline. The distance between the insertions of the round ligaments was shortened, and most of the enlargement appeared to be posteriorly. The patient had an uneventful postoperative course and was discharged on the eighth postoperative day.

The patient was again admitted in May, 1951 with the chief complaint of pregnancy with ruptured membranes at 38 weeks gestation.

Since the previous admission, the patient had continued to menstruate at 28 day intervals lasting 5 days with moderate flow. Her last menstrual period was August 26, 1950. The prenatal period had been uneventful. Membranes had ruptured spontaneously 5 hours prior to admission.

A classical cesarean section was again done, and she was delivered of an 8 lb. 5 oz. male. The uterus was found to be markedly dextrorotated, making a classical section necessary.

The postoperative course was uneventful, and the patient was discharged on the seventh postoperative day.

DR. JOHN C. BURCH: This case is interesting, as it brings up the question of the management of fibroid tumors in patients who have not had children and in whom it is necessary to preserve the childbearing function. Fibroid tumors usually occur after the age of 30. When they occur before the age of 30, it usually indicates that these tumors will grow and progress more rapidly than those that occur later in life. The question of the relationship between fibroid tumors and sterility is difficult to evaluate from a quantitative standpoint. It is known, however, that women who have fibroid tumors are prone to be sterile in a higher proportion of the cases than normal women. In this particular instance, the sterility was a voluntary sterility; the patient sought examination before attempting to conceive. We were faced with the possibility that if the fibroid was left alone, it might interfere with conception, the course of pregnancy, or delivery. Fibroid tumors in pregnancy rarely give trouble at the time of delivery unless the tumor is larger than 6 cm. On the other hand, fibroid tumors frequently give trouble during the course of pregnancy. Abortion occurs in patients with myomas about twice as frequently as in women who do not have myomas. If the myomas are large, 6 cm. or more in diameter, abortion occurs about

4 times as frequently. Premature labor occurs about twice as frequently. Abnormal positions are more common. Postpartum infection is much more common in women who have myomas.

Myomas may interfere with the efficiency of contractions, resulting in uterine inertia or postpartum hemorrhage. Submucous or intramural myomas may complicate the placental separation, resulting in incomplete separation or in a trapped placenta. Also, a small percentage of myomas will undergo some degenerative processes, particularly red degeneration.

Considering, therefore, the fact that a myoma would make the chance of a normal pregnancy somewhat more difficult, the fact that it is a progressive lesion, and the further fact that it might impair the ultimate fertility of the individual, myomectomy was deemed to be the best method of treatment.

The technique of myomectomy had been pretty well described in Dr. Chalfant's case presentation. There are just two or three points that are worthy of mention. The first is the occlusion of the blood supply. This is very easily done by passing a catheter around the cervix and clamping it tight, thus occluding the uterine vessels. The ovarian vessels can be occluded by the use of rubber-shod intestinal clamps on the infundibulopelvic ligaments. With the blood supply occluded, an incision is made in the anterior surface of the uterus. This is important, because if one makes the incision in the anterior surface of the uterus, the myoma can be shelled out and the wound covered by the bladder peritoneum. Thus you will not have a liability to intestinal obstruction which might occur with a posterior incision. A thorough search should be made for other myomas and the wound closed. The mortality and morbidity after such an operation is about the same as after hysterectomy. The results in such cases, especially in the young, are exceptionally good. I think this operation is well worthy of consideration. It is certainly an operation that exhibits the spirit of true conservatism.

DR. HOMER PACE: What is the relation of myomas to pregnancy?

DR. CHALFANT: Dr. Burch mentioned

the majority of the relationships of myomas to pregnancy. In regard to pregnancy following myomectomy, it is the opinion expressed in the literature that the chance of a patient who is relatively sterile, presumably due to a myoma, of becoming pregnant following the operation is approximately 30 to 35 percent. In our series, there were 6 out of 64 abdominal myomectomy cases in the past 20 years that became pregnant following the operation. Of these 64 there were 29 patients who were nulligravidas, married and of the childbearing age; or, 20.7 percent of the patients became pregnant following myomectomy. Dr. Duckering made an interesting report on the myomas in pregnancy. The instance of myomas in pregnancy was about 1½ percent. In 30 percent of the cases, the myomas were over 6 cm. in diameter. There was no obstructive effect in the myomas that were less than 6 cm. in size. The average age was 33, which is 10 years older than the optimal age for pregnancy. Forty-three percent of the patients were 35 or older, and 15 percent of the patients were elderly primigravidas. It is important that myomas associated with pregnancy be evaluated when the uterus is nearest the nonpregnant state. It is very difficult to detect myomas in the later stages of pregnancy. Small myomas in the fundus rarely interfere with safe delivery.

DR. HEADRICK: What are the main indications for myomectomy?

DR. CHALFANT: The main indication for myomectomy is actually in relation to the childbearing age. A reasonable definition of conservative surgery is "to preserve a physically and functionally normal organ," and the main indication for myomectomy would be to preserve a uterus as such during the childbearing age, with a main function of childbearing. Of course there are various other minor reasons, such as neuro-psychiatric basis and maintenance of endocrine balance. Some people seem to think the uterus is important in the maintenance of the endocrine equilibrium.

DR. RICHARD STUNTZ: Dr. Burch stated that the morbidity and mortality of myomectomy is about the same as that of

hysterectomy. Do you have any statistics on it?

DR. CHALFANT: Yes. There have been several reports in the past 30 years in relation to the mortality rate. Mayo was probably the first in this country to present a relatively large number of cases. He had 909 cases of myomectomy with a mortality of 0.7 percent. Counseller, in 1934, reported 523 cases with a mortality of 1.1 percent. Rubin reported 481 cases with a mortality of 1.9 percent in 1942, and Bonney, in 1946, in his monograph reported a mortality of 1.7 percent. In our 64 cases of abdominal myomectomies we had one death, and this occurred in the early nineteen-thirties. The death was due to hemorrhage both primarily and secondarily. As for the morbidity rate here at Vanderbilt, it was 18.7 percent. The majority of these cases occurred before 1940, before the days of chemotherapy, and when transfusion was practically a major procedure. It wasn't uncommon at that time in the operative note, when no methods of hemostasis were used, to see the notation that bleeding was profuse and the blood pressure had dropped to 60/40. In connection with the morbidity is the closure of the cavities after removal of the tumors. Great emphasis should be made on not tying the sutures too tight and not using sutures that will greatly constrict the blood supply and increase the likelihood of massive tissue necrosis.

DR. GEORGE CRAFTON: What is the incidence of recurrence following myomectomy?

DR. CHALFANT: It is the consensus of opinion that in a complete operation, with a thorough examination of the uterus at the time of myomectomy, the recurrence rate is 2 to 3 percent. Bonney mentioned that in most of his cases the recurrence had occurred in young patients. He is of the opinion that the seeds of fibroids are most commonly laid down between 28 and 33 years of age, and that after 33 the chances of new seedlings forming rapidly diminish. After 36, they are practically nonexistent. It therefore follows that when myomectomies are performed on women in their twenties, the chance of new fibroids appearing is very definite. Also, the presence of



fibroids at so early an age is probably evidence of an abnormal fibroid-forming tendency which predisposes to recurrence.

DR. THOMAS WARDER: What criteria would you use to recommend myomectomy when a tumor is found and pregnancy is in progress?

DR. BURCH: I don't think myomectomy is indicated in pregnancy. Myomectomy should be performed before pregnancy. If a tumor is discovered during pregnancy, the pregnancy should be allowed to go to term as a general rule, and at term appropriate measures should be taken. If the myoma obstructs the birth canal, then the question is either a cesarean section with myomectomy, if it is necessary to preserve the childbearing function, or a cesarean-hysterectomy, if it is not necessary to preserve the childbearing function. The consensus of opinion, I believe, and my own experience has certainly indicated that to do a myomectomy during pregnancy is not very good.

DR. PACE: Dr. Burch, what treatment do you recommend in an infarcted or twisted subserous fibroid in a pregnant woman?

DR. BURCH: Well, that's a very different proposition. If there is an infarcted or twisted fibroid with symptoms, you will have to treat it. But that is an exceptional circumstance. It depends on the severity of the symptoms entirely. I have never seen a case in which one was actually forced to operate.

DR. ROY PARKER: Dr. Burch, what about myomectomy at the time of cesarean section?

DR. BURCH: Myomectomy at the time of cesarean section is very permissible.

DR. PARKER: There is a difference of opinion about that, isn't there?

DR. BURCH: Yes, I think there is. Cesarean-hysterectomy is the preferable operation, but it's a question of whether or not you are going to try to preserve the childbearing function. What's your opinion about myomectomy at the time of cesarean section?

DR. PARKER: In the last article from the Margaret Hague Hospital, Waters discussed the surgical conditions during preg-

nancy. He condemned myomectomy with cesarean section—said it was bloody, unnecessary, and risky. His line of thought was that if the conditions of the tumor warranted removal at the time of cesarean section, that it was probably better to do a hysterectomy. Otherwise, he thought that it was better to leave the tumor alone at the time.

DR. BURCH: Well, I think that is fairly sound reasoning, except in cases where it is necessary to preserve the childbearing function.

DR. HEADRICK: What is the number of myomas in which you would consider doing a hysterectomy at cesarean section, no matter how old the patient is?

DR. BURCH: Well, you can't answer that question on any numerical basis. It depends entirely on the woman's need for further pregnancies. If the uterus has a lot of small fibroids in it at cesarean section, I don't think you would want to do very much about it. If, on the other hand, the patient had a large subserous or pedunculated myoma that you could snip off and be done with it, it would be very foolish not to do so. Myomas in the uterine wall will regress, and I don't think you can make any categorical statement about when you are going to take one out or when you are not going to take it out. If the patient is a woman who has one child, it is an entirely different situation than with a woman who has 15. But you do not see many women who have 15 children with myomas.

DR. CHARLES HUDDLESTON: How is hemorrhage best controlled during myomectomy?

DR. CHALFANT: Hemorrhage has been one of the big "bug-a-boos" of myomectomies. In 1923 Bonney invented a clamp which he placed around the cervix to occlude the uterine vessels, and he uses ring clamps or sponge forceps in occluding the ovarian vessels. Various other methods have been used, such as having an assistant grasp the broad ligaments with his hands, or clamping with rubber-shod clamps. The tourniquet method described in this case is probably the most efficient in actually controlling the blood supply. It should be emphasized that it is useless to occlude

*(Continued on page 342)*

"Concerning the AMA and my dues to it. I get my \$25.00 worth. The Journal is first rate,—subscription price \$12.00. The remaining \$13.00 is well spent. In academic medicine I, as do all men engaged in medical science, use constantly the Cumulative Index, the only universal bibliographic reference,—this is published by the AMA at a loss of \$75,000 annually. I get some of my \$13.00 here. Then I commonly refer to the Special Journals of the AMA to which I can not afford a subscription, but published by the AMA at an annual loss of \$20,000. The deficit on the activities of the Council on Pharmacy and Chemistry and Council on American Medical Colleges and Hospitals runs well up into six figures. Since you, I am sure, know nothing of what these two councils mean to you and the public, I suggest research on your part, if you do any preparatory to writing. Then you will see that that piddling 25 cent reduction from your \$15.00 bill was cutting off your nose to spite your face.

"So, Mr. DeVoto, I get my \$25.00 worth, and I'll take some Whitaker and Baxter with it. I haven't heard that you are giving up your citizenship because you do not like the President or Secretary of State, or because your taxes have increased or because you do not like the current foreign policy. The AMA is democratic enough for me to stay in it. After all, a lot of what goes on now was forced on us by 'do-gooders' of your ilk just as mobilization has been forced on us by those who think communism is an ideal way of life. (Because of your misquotations I hasten to point out that I am not classifying compulsory health insurance and communism as one, but merely indicating that the actions of a body may be forced by factors outside its control.)

Sincerely,

R. H. Kampmeier, M.D."

RHK:MH

At press time, Mr. DeVoto's reply came. It is in the same vein as the article he wrote. Here it is in full:

"Dear Dr. Kampmeier:

"Like any writer, I am always sorry to lose a reader. If you read my book, however, with no more comprehension of what I was saying than you read my article in Harper's, I can only say that it is no great loss.

"Sincerely yours,  
"Bernard DeVoto"



the uterine arteries without occluding the ovarian vessels, because there is rich anastomosis between the two vessels. Opinions vary as to how long these clamps should be left on. Rubin mentioned that he thought they should be released about every 10 minutes. Bonney left them on throughout the entire operation, and he removed, in some cases, as many as 225 fibroids. We usually release the clamps about every 30 minutes in an effort to prevent devitalization of the tissue.

DR. MARGARET VELLER: How dangerous is vaginal delivery following myomectomy?

DR. BURCH: My impression is that it's not as dangerous as we think.

DR. CHALFANT: It depends a great deal on the type of myoma that one removes. If one removes a submucous or intramural myoma, in which one makes a large incision in the uterine wall and practically bisects the uterus, it would probably be much better to deliver by cesarean section. In the ma-

jority of cases in which a subserous or pedunculated myoma has been removed, I think vaginal delivery would be without undue danger. There are some who believe that the healing process in the uterus in the nonpregnant state is much better than it is in the pregnant state. During a cesarean section the uterine cavity is entered and the incision is contaminated with bacteria. Also, the uterus, is relaxing and contracting in the postpartum state. These factors contribute to scar weakness. In the nonpregnant state, the uterine cavity, if opened, is usually sterile, and the organ is in a relatively quiet state, which contributes to stronger scar formation.

DR. PARKER: Along that same line, the uterus has remarkable healing powers, and after three days the connective tissue fuses and the scar is healed. You also have regeneration and probably hyperplasia of the smooth muscle cells, and after about two weeks it is difficult to find the incision.

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**Dysgerminoma of the Ovary. Pedowitz, P., and Grayzel, D. M. *Am. J. Obst. & Gynec.*, 61: 1243, 1951.**

Dysgerminoma is an epithelial neoplasm which, though morphologically malignant, has been considered, heretofore, to be relatively benign and less malignant clinically than the granulosa-cell carcinomas. It is identical in structure to the seminoma occurring in the testis. Several designations for this tumor have been used in the past, such as small and large-cell carcinomas, embryonal-cell carcinoma, seminoma, and others. Today the name dysgerminoma, first introduced by Meyer, is commonly used. The incidence and the degree of malignancy will be further clarified as more cases are reported. The present series of 17 cases collected from 1926 to 1949 is one of the largest yet studied. Of these, 15 patients were observed at the Jewish Hospital of Brooklyn and 2 at the

University Division of Kings County Hospital. Seventeen cases of dysgerminoma with a 5 year survival rate of 12.5% are presented.

The tumor was found to be more malignant than heretofore reported in the literature. Tumors may show choriomatous elements in the metastases although they are not demonstrable in the primary tumor itself. Similar findings have been reported in the embryonal carcinoma. Radical surgery is advocated where feasible in all the patients, regardless of age, size of tumor and degree of encapsulation, to be followed by X-ray therapy. Histological examination should also include the broad ligament and the mesovarium for possible lymphatic involvement indicating spread of the tumor despite an intact capsule.

(Abstracted by Hamilton V. Gayden, M.D., Nashville, Tennessee)

## KENNEDY VETERANS ADMINISTRATION HOSPITAL CLINICAL PATHOLOGICAL CONFERENCE\*

**CASE ABSTRACT:** The patient was a white male farmer, aged 54 at the time of his first admission to this hospital on July 14, 1948. He was born in Alabama, lived in Mississippi at the time of admission, and had served in France during World War I. About 2 years previously he began to have non-radiating epigastric pain occurring 1 to 2 hours after meals, and promptly relieved by food or by "Tums." The pain had been worse in the 6 months just before admission. He was frequently awakened by the pain about midnight. The bowels were usually constipated, but in the month and a half preceding admission he had had occasional episodes of tenesmus followed by the passage of small amounts of fecal material containing bright blood; for the prior month almost all his stools had contained bright blood. There had been no tarry stools. He had lost 16 pounds in the preceding 2 years. There were no other significant symptoms. For about 10 years prior to the onset of symptoms the patient had been a heavy drinker, consuming as much as one quart of whisky in a day, but had not drunk since onset. The past medical history and the family history were irrelevant.

The patient was a well developed, well nourished, middle-aged white male not appearing ill, oriented and cooperative, weighing 174 pounds. The blood pressure was 140/90. There was a slight tenderness in the subxiphoid area. There was a small movable non-tender mass, presumably a lipoma, in the lower dorsal area. External hemorrhoidal tags were noticed at 4 and 8 o'clock. On digital examination of the rectum a firm mass was felt just at the tip of the examining finger. There were no other significant findings.

The following laboratory tests gave negative or normal results: complete blood count, urinalysis, blood sugar, blood NPN, serological tests for syphilis, sedimentation rate, bleeding time and coagulation time. One stool specimen showed a 3+ positive for blood with the guaiac test; others were negative. X-ray of the chest showed thickening of the pleura on the left. Gastro-intestinal X-ray was non-diagnostic, but suggested the possibility of a neo-plastic lesion in the antral region.

An attempt at gastroscopic examination was unsuccessful. On sigmoidoscopic examination a mass

about 2 x 1 x 0.5 cm., irregular in contour, friable, and pinkish red in color was present 8 cm. from the anus. A biopsy specimen from this mass was reported to show benign adenoma, but a second biopsy showed adenocarcinoma. On August 6, 1948, an exploratory laparotomy was done, the preoperative diagnoses being carcinoma of the stomach and carcinoma of the rectum. The following is taken from the operative notes: "There were no nodes in the mesentery of the sigmoid, nor were any periaortic nodes felt. Palpation of the stomach revealed a tumor about 5 cm. in diameter involving the greater curvature posteriorly. There were nodes in the gastro-hepatic ligament and tumor nodules could be felt in the left lobe of the liver, and along the junction of the right and left lobes at the anterior surface. In view of the metastases, it was felt that resection of either lesion would be a hopeless surgical maneuver." No biopsy specimens were taken. Postoperative recover was uneventful, and the patient was discharged to his home on August 16, 1948.

On September 9, 1948, the patient returned to the hospital because he had noticed several bloody bowel movements in the preceding few days. He had no other symptoms except mild indigestion. Physical examination was essentially negative, and it was felt unnecessary to repeat laboratory and X-ray examinations. He was told to return to the hospital if he developed additional symptoms, and was again discharged to his home.

The patient was readmitted to the Surgical Service on December 1, 1948. He had been having several small formed bloody stools each day without tenesmus. He still had post-prandial pain, not especially severe, relieved by a proprietary antacid or by food; in addition he had had occasional nausea and vomiting but no hematemesis. His general condition appeared good, and he had gained weight. His blood pressure was 130/80, and in general the physical findings were as on the first admission.

The surgical staff decided that gastric resection for palliative purposes was desirable; accordingly, on December 3 the lower two-thirds of the stomach were removed. Histological examination of the specimen showed a benign gastric ulcer and fibrosis of the pyloric region. Convalescence from the gastric resection was uneventful. Physical and radiological survey for metastases was negative. Accordingly, after a convalescent leave, abdominoperineal resection was performed on January 17, 1949. Histological examination showed adenocarcinoma; at both distal and proximal ends of the excised specimen was normal colon wall without tumor. Convalescence from this operation was marked by a bout of partial obstruction which was relieved without the necessity of re-opening the abdomen. By February 8, 1949, the patient was ambulatory, the perineal wound had healed, the colostomy was functioning well, and he was again discharged.

Blood count during the course of this hospital stay showed figures within the following ranges:

\*From the program of a conference of internists and consultants, Veterans Administration South-eastern Area, held at Kennedy Veterans Administration Hospital, Memphis 15, Tennessee, November 18-20, 1949.

Reviewed in the Veterans Administration and published with the approval of the Chief Medical Director. The statements and conclusions published by the authors are the result of their own study and do not necessarily reflect the opinion or policy of the Veterans Administration.



hemoglobin 8.9 to 15.7 Gm.; RBC 3.3 to 5.6 million; WBC 4,600 to 8,200; neutrophils 56 to 64 percent; lymphocytes 22 to 42 percent; monocytes 0 to 4 percent; eosinophils 0 to 4 percent; basophils 0 percent. The serum protein ranged between 6 and 7 Gm. % and the A/G ratio between 1.5 and 1.6. Laboratory examinations which gave negative or normal results include the following: urinalysis; sedimentation rate; serological tests for syphilis; bleeding and coagulation time; prothrombin level; blood sugar, chloride and NPN; gastric analysis.

The patient was admitted for the last time on May 19, 1949. Until about 10 days previously he had felt well and had gained about 20 pounds in weight. At that time he developed aching pain in the lumbar region bilaterally, in the posterior aspects of both legs, and in both feet. These pains had increased until he was no longer able to walk without help.

Physical examination revealed the abdomen to be soft. There was a normally functioning lower abdominal midline colostomy. The liver was palpated two fingerbreadths below the right costal margin. The scars of the epigastric incision and of the perineal incision were firmly healed. There were no other significant physical findings.

Throughout the course of this admission there was an irregular fever, usually between 100 and 101, with occasional falls to normal for as much as one day; antibiotics and sulfonamides failed to flatten the temperature curve. A few days after admission diarrhea consisting of 8 to 10 watery stools per day developed. The first blood count gave essentially normal results, but by June 2 a moderate macrocytic hypochromic anemia had developed. On May 29 the patient complained of numbness in the left hand. On examination he was found to have a partial paralysis of the common extensors of the left forearm and weakness of ulnar deviation of the wrist. Later the same day he complained of paresthesia of the right lower extremity and was found to have paralysis of the extensor muscles of the right foot and ankle. Lumbar puncture was done; the dynamics of the spinal fluid were normal, and the fluid was entirely normal. On June 4 it was noted that he had lost the power of flexion and extension of the toes of the left foot and that flexion at the left ankle was weak. There was a patchy hypesthesia over both lower extremities. At this time the pain in the leg had extended and had become increasingly severe; pain in the arms, somewhat less severe than that in the legs, had developed. The weakness in the upper extremities had extended to involve the extensor muscles of the right forearm. Metastatic survey X-rays showed no evidence of metastases to bones. Chest X-ray was unchanged from the initial one taken in July, 1948, showing only pleural thickening on the left. The patient failed rapidly. He was unable to take fluids by mouth. The abdomen became markedly distended with little relief from repeated enemas. He died on June 13, 1949.

During this admission serological tests for

syphilis were positive in low titer on two occasions, as follows: standard Kahn doubtful to positive in 3 units; Kolmer positive in 3 units to 16 units; cardiolipin flocc. positive in 2 to 4 units; cardiolipin comp. fix. positive in 3 to 16 units. The same battery of tests had given negative results in July and December, 1948. During the final admission the blood count ranged between the following figures: hemoglobin 10 to 12 grams; RBC 3.7 to 4.3 millions; WBC 6,800 to 18,900; neutrophils 78 to 92 percent; lymphocytes 4 to 16 percent; monocytes 0 to 2 percent; eosinophils 2 to 6 percent; basophils 0 percent. The urine contained a trace of albumin, a few white and red blood cells, and a few casts. Acidity of gastric contents, both free and total, was within normal limits. Total protein was 6.0 grams per 100 cc., and the A/G ratio was 0.9. Other tests which gave normal or negative results include: liver function tests; blood smear for malaria; stool examinations for parasites and ova; tests for heterophile antibodies; examinations of spinal fluid.

DR. TOBIAS STEIN<sup>1</sup>: Let me review briefly the history with reference to certain points. The duration of his illness was about two years when he was first admitted; that is a little long for carcinoma of the stomach, but does not rule it out. The type of epigastric pain suggests ulcer, but could occur in carcinoma. The tenesmus and bloody stools seem adequately explained by the finding of the adenocarcinoma of the rectum. The loss of 16 pounds in weight is consistent with either ulcer or carcinoma. A fairly good alcoholic history suggests cirrhosis of the liver and esophageal varices, but there is no other evidence to point in that direction. Thus, this case presents a number of questions rather than just one.

Let me consider next the neurological condition. One possibility is that he had a carcinoma which metastasized to the spine. Metastatic carcinoma of the spine is not uncommon, can occur without X-ray changes in the bone, and can occur without spinal fluid block or abnormal spinal fluid. I feel that a diagnosis of metastatic carcinoma of the spine is definitely tenable. It can readily account for the fairly rapid onset and progression of pain. It is true that the adenocarcinoma of the rectum was very small but a small primary lesion may produce widespread metastases. In the final admission the serological tests were weakly positive; on this account one might

1. From the VA Hospital, Montgomery, Ala.

consider syphilitic adhesive arachnoiditis, but this condition appears unlikely in view of the normal spinal fluid. Not infrequently a case appears obscure when presented at a CPC, but would be relatively simple if one were working with the patient in the ward. In a CPC one suspects tricks and bizarre diagnoses and therefore one looks for bizarre answers to the questions.

Before coming to the obvious conclusions that carcinoma explains the entire case I wish to refer to another group of diseases commonly mentioned in differential diagnosis, the collagen diseases. We think of periarteritis nodosa, particularly when we have several systems involved. This man did have evidence of involvement of kidneys; central nervous system, and gastro-intestinal tract. Another possibility is some type of granulomatous lesion which might account for the whole picture. I merely mention these things. I intend to play it straight and say that this man had metastatic carcinoma of the spine, either from the adenocarcinoma of the rectum or from carcinoma of the stomach which was missed in the sections of the surgical specimens.

DR. EARL T. ODOM<sup>2</sup>: This patient was a middle-aged farmer. As a middle-aged man he was susceptible to degenerative diseases, and as a farmer he was probably susceptible to certain occupational and environmental hazards. The history begins with what appear to be ulcer symptoms and the first question to be raised is "Did this man have carcinoma of the stomach?" The histologic examination of the excised stomach is strong evidence that he did not have a cancer there. From the history and the findings, we can conclude that he had adenocarcinoma of the rectum. What else would a middle-aged farmer be most likely to have? Certainly, fungus diseases must be considered. What type of fungus disease might he have had that would involve his gastro-intestinal tract? I think that blastomycosis without systemic or cutaneous manifestations would be rare, but actinomycosis of the abdominal type would have to be considered, and I believe it to be a diagnostic possibility in this case. The pos-

sibility of tuberculous enterocolitis comes to mind, but there is no evidence of tuberculosis in the laboratory findings. He had had a previous pulmonary lesion of some type which produced extensive pleural adhesions, and that may have been a tuberculous infection. In the terminal stage he had involvement of the genito-urinary tract and of the nervous system, as well as of the gastro-intestinal tract. If these are all due to one disease it would have to be a very widespread disease, and fungus diseases can be generalized, especially blastomycosis and actinomycosis. I think that he had a fungus infection, particularly in the cecal region which kept disseminating organisms and later made a systemic spread proving fatal to the patient. My second bet is that a gastric malignancy was missed and that later it metastasized.

DR. WALTER M. BARTLETT<sup>3</sup>: When Dr. Odom mentioned tuberculosis I almost hoped that he would arrive at a diagnosis of that commonly missed disease. Tuberculosis is well known to mimic many other kinds of diseases. I have seen actinomycosis which extraordinarily resembled tuberculosis, but it isn't sufficiently realized that the diagnosis of tuberculosis is frequently missed. Of some 60 cases of tuberculosis which came to autopsy, there were 2 in which the diagnosis of pulmonary tuberculosis had been missed. Of 10 autopsied cases of miliary tuberculosis the diagnosis had been missed in 5. One of these strikingly resembled leukemia because it showed extensive involvement of the bone marrow, and many bone marrow biopsies were interpreted as showing leukemia. This diagnosis had been carried through several admissions to various hospitals, and even the gross findings at autopsy did not reveal its incorrectness. It was not until the microscopic sections were examined that tuberculosis was diagnosed. Although we know that this patient had adenocarcinoma of the rectum, I believe that we should still strongly consider the possibility that his major disease, and the one which defeated him, was tuberculosis.

2. From the VA Hospital, Tuskegee, Ala.

3. From the VA Area Medical Office, Atlanta, Ga.



DR. WILLIAM A. SMITH<sup>4</sup>: I should like to comment on the neurologic findings. As recorded here, we have a rapid development of weakness of the distal parts of each extremity which rapidly became symmetrical, and with patchy sensory changes apparently over the distal portions. Those findings are characteristic of polyneuritis and not of anything else. You certainly couldn't get spinal metastases to produce a picture like that, so I think that in the terminal illness this man had some type of rapidly progressive febrile polyneuritis. The normal spinal fluid and the absence of metastasis shown by X-ray, of course, is consistent with that. I also note that in the terminal illness he had fever, eosinophilia of 2 to 6 percent and some changes in the urine. I, therefore, venture a suggestion of periarteritis nodosa.

DR. WILEY D. FORBUS<sup>5</sup>: Dr. Stein made the point that at any clinical pathological conference it usually is a foregone conclusion that there is a trick somewhere. Evidently that is a point which he has learned from experience, and he shows much wisdom in his manner of handling such problems. I subscribe heartily to his approach. There is usually something unusual about a case which is presented at a CPC, but I see no point in departing from common sense, sound judgment, and care in reasoning upon the basis of the facts which are available.

I received an advance copy of the clinical protocol and I have read it several times. Each time I came to one simple (and I think sound) conclusion, that here is a man who has died of something other than a carcinoma of the rectum, and that the carcinoma is as incidental in this case as a little ulcer in the colon might be in some other complicated case. Carcinoma here is an interesting detail, but of no real importance. Then, if this is not a case of carcinoma of the rectum with metastases, a wide range of possibilities lies open, and one needs to speculate. When one sees a

case of this sort with various manifestations, none of which seemed to fit exactly into any one entity, diffuse, vague in many respects, several things almost automatically come to one's mind.

One of these did come to the mind of Dr. Smith, the neurologist. He first made his diagnosis of polyneuritis which, of course, is correct. But to say merely that the patient had polyneuritis is no more specific than saying that he had nodules in the liver. But Dr. Smith went further than that; he then spoke of one of the common causes of polyneuritis, that is polyarteritis. Another entity that one thinks of in a problem of this kind is amyloidosis—not ordinary amyloidosis, but primary amyloidosis. When we realize that primary amyloidosis is a vascular disease, and that all the signs and symptoms are explainable by disturbance in the patient's circulation, it becomes a natural diagnostic possibility in this case and in similar cases. There is nothing whatever to suggest that this patient had one of the rickettsial diseases, but I merely mention in passing that they constitute another group of diseases in all of which the basic lesion is vascular. Polyarteritis nodosa is sometimes called the Kussmaul-Maier disease because those authors published a clinical and pathological report upon it in 1866, and described the characteristic lesions as consisting of minute aneurysms occurring at intervals along small arteries and arterioles. For a long time it was believed that syphilis can produce aneurysms of small arteries, such as those which are characteristic of polyarteritis, but this is not correct. Syphilis produces aneurysms only in large arteries, and chiefly in the aorta. Merely for the sake of completeness I shall mention one other generalized vascular disease, namely thromboangiitis obliterans or Buerger's disease. I think we would not have been confused by that disease as the differential diagnosis of this case, for obvious reasons.

Now, a last word, and that has to do with biopsy. It is obvious to all that had a biopsy been done at the time of the first operation, we would not have had a case to worry about. It is so easy not to do the obvious thing; and yet, the obvious thing is often the thing that turns the trick.

4. VA Area Consultant in Neurology; Associate Professor of Clinical Medicine (Neurology), Emory University, Atlanta.

5. VA Area Consultant in Pathology; Professor of Pathology, Duke University, Durham.

DR. D. J. GREINER<sup>6</sup>: Necropsy was performed 2½ hours after death.

The body was well developed and fairly well nourished, measuring 178 cm. and weighing approximately 140 pounds. The nasal septum deviated to the right. The teeth were in poor condition and there was brown fluid material in the mouth and pharynx. The abdomen was somewhat distended. There were a well healed transverse scar 14 cm. in length in the epigastrium and a 17 cm. midline scar with a central colostomy opening at the level of the umbilicus. A well healed scar replaced the rectum.

There was a slight decrease in the subcutaneous fat. The left pleural cavity was completely obscured by dense fibrous adhesions. The abdominal cavity contained 300 cc. of clear fluid. There were adhesions of omentum and bowel loops to the upper transverse scar and midline scar. There was partial absence of the stomach with a functioning gastro-enterostomy. The colostomy at the terminal end of the remaining colon was well healed. The lower sigmoid and rectum were absent. There was no gross evidence of tumor.

The left lung weighed 350 Gm. The pleura was thickened and roughened by old fibrous adhesions which obliterate the interlobar fissure. The right lung weight 630 Gm. and there was decreased crepitaney particularly in the lower lobe. Two small nodules were palpated in the lower lobe which on gross section were dark red and hemorrhagic.

The heart weighed 380 Gm. There were small milk-patch areas on the anterior surface of the ventricles.

The spleen weighed 250 Gm. and showed only several small shot-like calcified particles.

The liver and gall bladder weighed 2400 Gm. Small yellow areas were scattered over the liver surface. These were seen as small yellow areas on cut surface and were scattered through the parenchyma. The lobular markings were prominent with areas of firm white tissue in some portal regions. Two small loculated cystic areas filled with clear fluid were seen in the left lobe. There was some thickening of the gall bladder wall and nodules were palpated along the cystic duct.

The pancreas weighed 210 Gm. and was firmer than usual. On section there was degeneration in the central portion of some of the lobules.

The adrenals were slightly increased in size but were of normal shape.

The left kidney weighed 380 Gm. and the right 300 Gm. The surfaces were spotted by irregularly shaped pale areas .5 to 1.5 cm. in diameter. The cortico-medullary demarcation was indistinct. The cortex averaged 1 cm. in thickness. The parenchyma was flabby with pale wedge to rectangular shaped areas surrounded by dark red zones.

The testes showed only a firm enlargement of the right epididymis.

The gastro-intestinal tract showed the remainder of the stomach and bowel to be greatly distended. There was no evidence of tumor in the area of colostomy.

The aorta, urinary bladder, prostate, thyroid, brain and thoracic cord showed nothing of note in the gross.

Microscopically there were edema and congestion of the lungs with a lobular pneumonia on the right. Recent hemorrhagic infarction was also present in the section from the right lower lobe. There was slight hypertrophy of the cardiac muscle fibers and a mild interfibrillary fibrosis. The liver sections showed multiple areas of infarction, some with hemorrhage and early attempts at organization. The dense white lesions described in the gross were areas of old fibrosis containing blood vessels in varying stages of thrombosis, organization and recanalization. The cystic areas were chiefly lined by fibrous tissue but remains of cuboidal epithelium could be identified in one section. The gall bladder wall showed edema and one area of mucosal ulceration. There were scattered areas of infarction in the pancreas. Similar infarcted areas were present in the adrenals and kidneys.

The chief microscopic lesion was vascular. Medium sized arteries and arterioles in sections from the heart, liver, gall bladder, spleen, pancreas, adrenals, kidneys, prostate, testicle, and small intestine were involved. This was an inflammatory lesion involving all layers of the vessel wall but chiefly the media and outer intimal tissues. The lesions varied from fresh active involvement with necrosis, fibrinoid alteration and cellular infiltration by inflammatory cells, chiefly granulocytes, through all stages of healing to hyalinization of the affected portion of the vessel wall. Fresh thrombi accompanied the majority of recent lesions while, as lesions progressed in point of age, organization and finally recanalization could be repeatedly demonstrated. A perivascular infiltration was often present in earlier lesions.

The major process in this case could be demonstrated to involve portions of the vessel or vessel wall segments. This is characteristic of the disease process, and repair may lead to aneurysmal dilatation at the weakened point as was beautifully demonstrated in one section from the pancreas in this instance. The organization of such thrombosed aneurysms gives rise to firm periarterial nodules.

It was possible to demonstrate involvement of nutrient arteries supplying nerve in this case. As so well demonstrated by Dr. Kernohan of the Mayo Clinic this is the explanation of the neurologic findings in these cases. There is no neuritis in the

6. Pathologist, VA Medical Teaching Group, Kennedy Hospital, Memphis.



true sense of the word, all inflammatory reaction being confined to the vascular system. The result within the nerve may be edema, demyelination and degeneration of fibers or actual small areas of intraneural infarction. Bizarre neurological findings are thus produced.

Attempts were made in this instance to demonstrate a "cause and effect" relationship relative to the patient's gastric ulcer. "Skip" sections were made of the ulcer area. One vessel in the ulcer base showed a recanalized thrombus and medial destruction in one segment of the wall. In view of the surrounding inflammatory reaction incident to the ulceration one cannot definitely state that this vessel was previously the site of a lesion of polyarteritis. Involved vessels were demonstrated in sections taken at necropsy from the duodenum. Ulcerations of the gastro-intestinal tract may occur in this condition and perforation has been reported.

The infarcts as demonstrated in this case, particularly those of kidney and liver, are common in this condition. The kidney is

involved in 87 percent of the autopsied cases and the liver in 66 percent. The lung is involved in only 25 percent of cases. In this instance all vessels showing pathology were within the actual zone of infarction in the lung and a cause and effect relationship can only be surmised.

The final anatomical diagnoses in this case are as follows:

1. Polyarteritis, involving arteries of heart, liver, gall bladder, spleen, pancreas, adrenals, kidneys, prostate, testicle and small intestine.
2. Infarction of lung, liver, pancreas, adrenals and kidneys.
3. Lobular pneumonia, right lung, terminal.
4. Benign gastric ulcer (surgical No. 12-22-48.)
5. Partial gastric resection.
6. Gastro-jejunostomy.
7. Adenocarcinoma of rectum (surgical No. 7-280-48 and 1-191-49).
8. Surgical absence of sigmoid colon and rectum.
9. Functioning of colostomy.

**The Prognosis in Arterial Hypertension. Griep, A. H., Barry, G. R., Hall, W. C., and Hoobler, S. W. *Am. J. M. Sc.*, 221: 239, 1951.**

The authors report 117 carefully studied hypertensive patients under the age of 53 with blood pressures initially exceeding 160/110, who were followed up 9 years later. Of this group 46% had died of the complications of hypertensive disease. Cerebrovascular accidents accounted for approximately one-half of the deaths, and cardiac and renal complications accounted for the remainder.

The most important factor in determining prognosis was the initial presence of vascular disease as manifested by cardiac enlargement, electrocardiographic alterations, albuminuria, or hypertensive encephalopathy. Approximately 80% of patients with such complications died, whereas only 20% of those without evidence of vascular damage failed to survive the 9-year interval. The effect of such complications on mortality rate was independent of the height of the blood pressure, sex distribution, or other known variables.

A serious attempt was made to select those factors which in themselves are of prognostic importance. In addition to the initial presence of hypertensive complications, the following findings in approximate order of individual importance seriously affect the prognosis: 1. height of diastolic blood pressure; 2. male sex (the mortality rate in males was higher by a ratio of 3:2); 3. abnormality of the electrocardiogram; 4. hypertensive retino-

pathy. Certain factors did not appear to play a significant role in increasing the mortality rate. These included age of patient, estimated duration of hypertensive disease, frequency and severity of headaches or dizziness at the time of initial examination.

The survivors, when re-examined, showed evidence of slow progression of their hypertensive disease. However, 80% were without serious or disabling symptoms. This finding emphasizes the benign course of the disease in many patients without vascular complications.

The blood pressure showed little tendency to change either in the survivors or in those who died of hypertensive disease. Many patients withstood severe hypertension for many years; only 2 survivors had a fall in blood pressure to normal levels.

The unreliability of the height or change in the blood pressure level as a prognostic sign in hypertension is emphasized by these studies. They also stress the importance of determining the degree and progression of vascular damage in heart, brain, retina and kidneys. Such data must be known before mortality rates in any series of hypertensive patients can be evaluated, and this information is of vital importance in formulating a plan of treatment for a patient with "essential" hypertension.

(Abstracted for the Middle Tennessee Heart Association by Samuel S. Riven, M.D., Nashville.)

# President's Message

## WHO PROTECTS THE TENNESSEE PLAN?



DR. KELLY

plans would not and could not survive unless doctors, patients and hospital administrators stopped certain abuses of hospitalization.

His appeal at the meeting was directed to the medical profession. He cited certain abuses which doctors sometimes inflict upon hospitalization plans, such as admitting patients to hospitals for conditions which do not require hospitalization for adequate medical care.

A doctor, in many instances like this, is guilty only of not having enough "guts" to tell the patient that the hospital is not a rest home. It is usually the patient who says, "Doctor, why can't I go to the hospital for a few days and rest? I have no cook and my sister is away all day, and I do have hospitalization insurance."

The doctor knows that if he says, "No, you will be just as well off at home," the patient may go to his competitor down the street and be admitted to the hospital and kept as long as she desires.

But the fact that someone else will do this if I don't is certainly no better justification here than in the case of illegal operations or operations that are legal but unnecessary. There is always someone who will do anything for a dollar, but let's keep that group to a minimum in the medical profession.

If you do not believe that there are abuses of services provided by these insurance plans—gross, flagrant, unethical, dishonest, and very expensive abuses—by both the patient and his doctor, just devote a

moment to the following actual case listed below.

A male patient was admitted to hospital for exploratory neck surgery—removal of a parathyroid tumor and lymph node biopsy. When the hospital bill was submitted to the insurer, it was found that the man had been hospitalized for 29 days and that the surgery had been delayed until his twentieth day in the hospital (oddly enough, just one day before the expiration of his 21 days full hospital service benefits allowed). We cannot help wondering whether surgery could and would have been carried out more promptly had the patient been meeting the cost himself. This is one of many examples brought to our attention by the carriers.

Records reveal instances, also, in which patients are hospitalized with a diagnoses clearly intended to mask the true condition which would not be covered by the insurance plan carried by the patient.

If abuses are permitted to continue, they will doom the voluntary prepayment systems of medical care by making them too expensive for people in the low income bracket. It is regrettable that some doctors fail to realize this threat and often, wittingly or unwittingly, are active instigators of, or are participants in such practices.

It will avail us little to maintain that compulsory health insurance will be more costly than voluntary, nonprofit, prepayment plans. We know that to be true—but a different group of people will be carrying the financial burden of compulsory health insurance. The poor can vote even if they cannot afford voluntary health insurance. Therefore, we must protect our voluntary plans so that they will be within the pocket-book reach of the poor.

*Ernest S. Kelly*



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AUGUST, 1951

## EDITORIAL

### DDT

This abbreviation has become a household term because of the widespread use of one of the isomers of dichlorodiphenyltrichloroethane mainly as an insecticide. Though it was first described by a German chemist in 1874, its potential use as an insecticide was first recognized by a Swiss chemist in 1936. The everyday use of this chemical dates from its acceptance by the U. S. Armed Services in 1942. Because of its common use the doctor often is asked questions concerning its toxic effect. Therefore the report of the A.M.A. Council on Pharmacy and Chemistry is worthy of the doctor's perusal.<sup>1</sup>

DDT is a powder which though insoluble in water is soluble in mineral and vegetable oils and in common organic solvents. It is available in dry form for dusting, in emulsions for dilution with water and as aerosols

<sup>1</sup>Pharmacologic and Toxicologic aspects of DDT (Chlorophenothane USP) by the Committee of Pesticides of the Council on Pharmacy and Chemistry, J.A.M.A., 145: 728, 1951.

for wide dispersion. DDT appears in concentrations of from 1 to 75 per cent in the insecticides on the market.

As an insecticide DDT slowly paralyzes the insect by its effect on the nervous system either through contact or the stomach. The susceptibility of insects varies widely in species, even though closely related, and houseflies and mosquitoes have been shown to have developed tolerance or resistance to DDT.

The toxic effect of DDT on man and higher animals is manifest in the cerebellum and higher motor cortex with hyperexcitability, generalized tremors, spastic or flaccid paralysis and convulsions. The myocardium may be so sensitized by DDT that sympathetic stimulation may induce ventricular fibrillation.

Though solid DDT is poorly absorbed from the gastro-intestinal tract, in oily solutions it is readily absorbed through the skin and respiratory and gastro-intestinal tracts. (Cows absorb wettable powders through the skin, the DDT appearing in the milk.) It is stored mainly in the fatty tissues and in the liver, though in chronic poisoning DDT is found in all tissues and organs; fifty per cent of the poison stored still remains in the tissues after three months.

Though chronic poisoning may follow the ingestion of DDT for long periods, the toxic effects are produced mainly through absorption via the skin or respiratory tract of oily solutions or emulsions of the chemical in concentrations of 10-25 per cent. The commonly used aerosols (3% DDT) used in the home are non-toxic because of the transient exposure, though they may irritate the conjunctiva and respiratory mucosa. Pathologic changes appear mainly in the liver, kidneys and myocardium.

The symptoms of acute DDT poisoning in animals are, first twitching of the eye-lids passing into generalized tremors, first of the head and neck and then of all muscles. Convulsions follow stimuli as noises and jarring. Death occurs from respiratory failure or ventricular fibrillation. Chronic poisoning causes weight loss, anorexia, anemia, weakness, tremors and later convulsions, coma and death. Prophylaxis against poisoning in agricultural and in-

dustrial pursuits involves protective clothing, respirators, change of clothing and soap and water if 10-25% solutions are spilled on the skin. In the home the exclusion of DDT from food cupboards and medicine chests will reduce accidents due to ingestion. Care should be exercised in spraying rooms of children and invalids and exposed food and cooking utensils.

There have been reported 384 cases of poisoning due to DDT with 14 deaths. These represent a minute percentage of those exposed to DDT and thus this chemical is one of relatively little importance as a poison in those having the more common exposure to it in the home or garden. Nevertheless the physician should recognize that non-lethal chronic poisoning may be encountered in those suffering from heavy exposure to DDT in industry or in agriculture.

R. H. K.



#### "COOKBOOK" LABORATORY WORK

In this issue appear two papers on the laboratory and the aid it offers the physician in his everyday diagnostic and prognostic problems.

There is no gainsaying the fact that the clinical laboratory is the handmaiden of the doctor in providing much of the best, modern medicine can offer his patient. But the physician must be constantly on his guard that he does not capitulate to its lures and permit his handmaiden to become his mistress. All of us are constantly in danger of succumbing to the objective or concrete, and relegating the cogitative or more abstract to a secondary place. In these editorial columns it has been urged that the findings of the clinical laboratory be accepted and interpreted in the light of the story and physical findings. For as Osler put it so well, "The practice of medicine is an art, based on science."

To move from the philosophical to the practical—how trustworthy is our handmaiden or how deceptive! No one will quarrel with your editor if he says that laboratory results are to be accepted only in terms of the capability and integrity of the person performing the test. *This personal equation cannot be circumvented.*

This applies to the simplest daily routines. The wet pipette, the bubble in the pipette provide worthless results.

But the editorial title refers to a more difficult phase of laboratory work—biochemical determinations. Electrocolorimeters are now on the market at prices within the range of the man in practice or the small hospital. Your editor suspects they are a "loss-leader" since the price of the reagents necessary must provide a lucrative income. This is highlighted by the fact that certain of the colorimeters can only be purchased if a "cookbook" is bought with them *at a price*. The "cookbook" instructs the technician how much of 'this' and of 'that' reagent are to be used.

No apparatus is fool-proof. To place a delicate instrument in the hands of a person who would not recognize its malfunction, who does not understand dilution factors, who does only a rare determination—say for calcium several times a year, who uses outdated reagents or those from unstoppered bottles, and lastly who knows nothing of the basic principles involved, is reminiscent of Mark Twain's essay on watchmakers.

Your editor admits the necessity of "cookbook" laboratory work and will compromise with its use if the doctor will appreciate its vagaries and be ready to say, "I don't believe this result!" To accept X mg. % of Ca or NPN in the face of clinical findings to the contrary may be the equivalent of accepting that black is white.

The final question, "*Do the numerals on the laboratory report slip make sense?*"

R. H. K.



#### EXTENSION OF THE TENNESSEE PLAN

In the July issue your Executive Secretary notified the members of the Tennessee State Medical Association of action taken by the House of Delegates at the called meeting on July 8. The resolution providing for 'Plan B' raising the income limits of the insured to \$3,000 per year for a single person and \$4,500 for a person with dependents was passed unanimously.

When 'Plan B' is made available to supplement 'Plan A,' already successfully es-



tablished, insurance coverage for surgical fees will be accessible potentially to possibly about three-fourths of the population. This will go far to still the demands from some quarters for some form of governmental medicine. (The doctor will have fewer uncollected bills to worry about.) Another forward looking resolution gave the Prepaid Insurance Committee instructions to set up non-surgical insurance for hospitalized patients under Plans A and B.

The House of Delegates thus took unselfish and progressive steps which can merit only approval of the public.

R. H. K.



## Special Article

### PRIVATE MEDICINE AND PUBLIC HEALTH MEET A CHALLENGE

*Tennessee's Program for the Speech and Hearing Handicapped*

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It has been said that the profession of Public Health was conceived and born of the efforts of private medical practitioners to perform what seemed to them to be their civic duty. Certainly such has held true in Tennessee since 1874 when the Tennessee State Medical Association first sponsored legislation to create the Tennessee Department of Public Health. Each new responsibility given to the Tennessee Department of Public Health has come with a charge from organized medicine, who often has acted as the spokesman for a changing and dynamic society, the two determining to a large degree the extent and the content of Public Health Programs.

One clear example of the foregoing has been the recent movement to provide medical and auxiliary services to persons handicapped by defects of hearing and speech. Practitioners have always been concerned about children and adults with chronic and

handicapping disorders which preclude receiving a normal education and make difficult the ability of the individual to earn a living and support himself adequately in society. Since 1929 the program for indigent crippled children within the Tennessee Department of Public Health has received the full support and cooperation of organized medicine, most especially the Orthopedic Surgeons, Plastic Surgeons, Pediatricians, and others. Over the past two years there has been developed the Tennessee Hearing and Speech Foundation which has as its object the seeking out, treatment and rehabilitation of children and adults with speech and hearing defects. This movement, which is in part a Public Health Service, was spearheaded and organized by a forward thinking member of the medical profession who has long recognized that the problem was universal but that the unassisted efforts of citizens and the uncoordinated resources of the communities could not cope with it. The Foundation is supported by The Nashville Academy of Medicine which has appointed the Foundation's Medical Advisory Committee, and also by the Tennessee State Medical Association through the Tennessee Academy of Ophthalmology and Otolaryngology. These groups also brought the matter before the Tennessee General Assembly which saw fit to appropriate to Crippled Children's Service, Tennessee Department of Public Health, funds to develop a state wide program in this field. Thus we are witness to the birth of a new Public Health Service.

The overall program of the speech and hearing handicapped has been divided into three phases. The first phase consists of case finding and screening, this to be accomplished by mobile screening and diagnostic teams operating over the state and under the direction of Crippled Children's Service, Tennessee Department of Public Health. The second phase consists of providing general medical services, detailed otolaryngological examination and treatment as indicated, and specialized services such as detailed audiometric studies, fitting of hearing aids, speech therapy, etc. This phase is the responsibility of the Tennessee Hearing and Speech Foundation in its center

at Nashville and in other centers to be developed across the state. The third phase of the overall program is the education of these children which responsibility will be assumed by the State Department of Education and local school jurisdictions.

We should like now to describe in some detail the first phase of the speech and hearing program as referred to above.

The General Assembly of the State of Tennessee, in its 1951 session, made two contributions in the field of speech and hearing. It redefined the legal definition of a crippled or handicapped child which made it permissible for Crippled Children's Service, Tennessee Department of Public Health to consider children with defects of hearing and speech as crippled or handicapped. It also appropriated to Crippled Children's Service the sum of \$120,000 annually for special services including speech and hearing defects. This legislation was sponsored by the Tennessee State Medical Association and the Academy of Ophthalmology and Otolaryngology. In conformity with this appropriation, Crippled Children's Service has put into operation as of July 1, 1951, a state wide program designed to find, test, screen and refer for treatment children with speech and hearing disorders, and to provide aid, treatment and auxiliary services for the indigent children so handicapped. The program will integrate efforts and contributions of the Tennessee Department of Public Health, State Department of Education, Tennessee Hearing and Speech Foundation and private and voluntary groups and organizations so that maximum service will be rendered without duplication by official or non-official agencies, and at the same time all facets of the handicapped child will receive service commensurate with demonstrated needs.

Crippled Children's Service will have operating in each grand division of the state a mobile diagnostic and screening team, composed of a trained and experienced audiologist and an assistant, and equipped to do mass or individual audiometric testing, speech recording, and other procedures to determine that a given child is handicapped by a speech or hearing defect. Arrangements will be made whereby school

children will be tested in the school situation. Pre-school children and persons out of school but under twenty-one years of age will be tested through clinics established in local health departments. It is hoped that eventually every child in Tennessee will be so screened. When one realizes that an estimated 5 percent of school children are handicapped by a speech or hearing defect, one can visualize what a large increment of our childhood population will be reached and benefitted by this program.

It is the conviction of all us working in this program that medical examination and medical treatment are a prerequisite to specialized audiometric studies and other speech and hearing center services. Therefore, the screening teams, having established the existence of a defect, will refer each child to his local private physician for a general physical examination and for whatever treatment the private physician deems indicated. Thereafter the private physician will be requested to refer the child to an Otologist of his preference for an ear, nose and throat study, in case such is not within the usual activity of the private physician. When all medical treatment has been completed, the child will then be referred to the Hearing and Speech Center if his disorders of speech and hearing persist. We feel that many of the hearing and speech disorders of young children can be corrected by good medical care directed toward the ears, nose, and throat. Children who have been benefitted from such treatment but may have a minor residual speech defect may be referred by the private physician to the local school superintendent, whose speech teacher will be available to complete the educational phase. Children under care of the speech and hearing center will be referred back to the local private physician periodically for follow-up care and also will be referred back to the private physician should any indication for medical care or other medical service appear.

Crippled Children's Service does not propose to operate treatment centers for the speech and hearing defective. Crippled Children's Service does propose however to stimulate and assist local communities



to establish centers, to recommend standards and services that may be offered, to assist in getting these centers opened, and to purchase service from these centers for children whose parents are unable to pay for such services. Crippled Children's Service also stands willing to help medical schools and universities and colleges in the training of professional and educational people in the field of speech and hearing. The same policies with respect to acceptance for care will prevail in the Speech and Hearing Program as exists already in other branches of the Crippled Children's Service. While all children will be offered testing services, only those cases who are determined to be medically indigent will become eligible to have their care and treatment provided by Crippled Children's Service. It is the hope of Crippled Children's Service and the Tennessee Hearing and Speech Foundation that eventually several cooperating centers will be developed in geographically strategic areas, for example, Memphis, Jackson, Chattanooga, Knoxville, and Johnson City, in addition to the parent center of the Speech and Hearing Foundation in Nashville. These centers will welcome referral of private patients from private physicians for the services they are able to provide. Again, those children whose parents are unable to pay, will be provided service by Crippled Children's Service.

In conclusion, let us restate that the practice of Public Health has stemmed from the private practice of medicine, an effort on the part of physicians everywhere to provide a healthier community and a healthier world. This program for the Speech and Hearing Handicapped is representative of that philosophy and stands as a tangible example of private medicine and public health working together to bring new and broader service to a receptive public.

## WHAT'S NEW IN MEDICINE

### Antiacids for Control of Nausea and Vomiting Caused by Terramycin

Since heartburn, nausea or vomiting occur in about 50 percent of persons taking

aureomycin or terramycin various methods of combating these have been tried. Though effective in controlling these symptoms, aluminum hydroxide gels impair absorption of the antibiotics. Milk is effective in some patients though may be contraindicated before operation.

Parsons and Wellman (Proc. Staff Meet., Mayo Clinic, 26:260, 1951) therefore experimented with the use of carmethose, aciban and sodium bicarbonate. These antacids were used with a single dose of 750 mg. of terramycin in volunteers who had no renal disease. Blood studies for terramycin activity were done four hours later.

The authors found these antacids controlled the untoward gastrointestinal symptoms and yet permitted blood levels of terramycin of the order obtained when the antibiotic was taken with water or milk. Because of cheapness sodium bicarbonate may appear to be the drug of choice if there is no contraindication on a biochemical basis.

★

### Certain Cardiovascular Responses to ACTH and Cortisone in Man

Because of the widespread use of these hormones, Horwitz, Sayen, Naide and Hollander (Am. J. M. Sc., 221:669, 1951) felt it desirable to note their effect on some cardiovascular phenomena. They decided to study the digital cutaneous temperature as an index of blood flow, cardiac output, blood pressure, pulse rate and mouth temperature on 18 patients having rheumatoid arthritis. Of these 15 were females; ages of the 18 patients ranged from 19 to 53 years. Studies were carried out while ACTH or cortisone were given as treatment of rheumatoid arthritis. Observations were made in a constant temperature room held at 20°C, several times both before and after treatment with one of the hormones.

In 7 of 11 patients treated with ACTH there was an increase in the skin temperature of the fingers. No vasodilatation occurred in the toes, however, in 9 of the 11 subjects. Since the hormones decreased the fever and lessened pain, the pulse rate dropped and a concomitant decrease of cardiac output occurred. There was a drop in

the mouth temperature. No changes were noted in blood pressure levels in these 18 patients. Cortisone caused no change in the temperature of the skin of the fingers.



### Effects of Newer Drugs on Coronary Artery Insufficiency

Best and Coe (*Am. J. M. Sc.*, 222:35, 1951) tried the effectiveness of dioxylane phosphate, a synthetic drug similar to papaverine, and enteric-coated khellin in the prevention of angina pectoris. (The enteric coating was added to the latter drug in the hope of obviating untoward side effects and thus permitting optimal dosage.) Observations were carried out on 11 patients having angina, due to coronary arteriosclerosis, for at least 2 years.

In studying the effects upon the EKG in response to exercise tolerance tests, anoxemia and ergonovine tests, 32 tests were done before treatment—of these 31 were positive. After oral administration of dioxylane phosphate, 11 or 35.4 per cent showed normal electrocardiograms. Three more became normal after intravenous use of the drug. Thirteen tests (41.9%) became normal after enteric-coated khellin.

Precordial pain appeared in 24 (75%) of 32 tests before treatment. Such pain occurred 15 (46.9%) times after dioxylane phosphate and 17 (53.3%) times after enteric-coated khellin.

Clinically anginal attacks were fewer, less severe and accompanied by a 50 per cent reduction of nitroglycerine consumption in 7 patients while on enteric-coated khellin and in 6 patients while on dioxylane phosphate. Toxic side effects were anoxemia, nausea, vomiting and diarrhea.



### Response of Rheumatoid Arthritis to Postpartum Plasma

Graniver (*J.A.M.A.*, 146:995, 1951) reports a 2-year observation of 8 patients having chronic but active deforming arthritis treated by postpartum plasma. All patients had disabling polyarticular rheumatoid arthritis of a severe grade confining them to a bed or chair. Patients' ages var-

ied from 48 to 63 years; arthritis had been present from 6 months to 18 years.

Pooled postpartum plasma was given intravenously weekly in 250 cc. quantity. As a control, an equal amount of plain plasma was given to a similar group of patients. Also when postpartum plasma was replaced by plain plasma symptoms worsened in a few days. A total of 6 to 8 pints was needed before remission took place. Changes for the better were gradual. One patient has been well 18 months after treatment; 4 have maintained improvement for 12 months after treatment was stopped. Subcutaneous nodules disappeared. Two patients did not improve, but they had less treatment than the others. Laboratory abnormalities reversed except for the sedimentation rates. A weight gain of 5 to 30 pounds occurred in the patients treated.

When symptoms recurred they were less severe than previously, and the plasma was again effective in control of the clinical manifestations.

## DEATHS

**Dr. James B. Lowry**, former Giles Countian, died in Lakeland, Florida in late July. He received his M.D. from Vanderbilt University Medical School and practiced most of his life in Lakeland.



**Dr. M. M. Cook**, 81, who practiced in the Sante Fe Community of Maury County almost 50 years, died at his home there July 22. After pre-med at the University of the South at Sewanee, Dr. Cook graduated from U-T Medical School in 1901. He was an uncle of Dr. W. N. Cook of Columbia.



**Dr. William N. Lackey**, 75, of Gallatin, died July 17 in Murfreesboro hospital following a long illness. He received his M.D. from Jefferson Medical College, Philadelphia and began practice in Gallatin in 1899, retiring three years ago. He was Gallatin's City Health Officer for approximately thirty years.



**Dr. Madison Buckley**, Martin, was fatally



injured in a traffic accident near Memphis. He died in Baptist Hospital July 14. He graduated from University of Tennessee Medical School. He was 52.

★

**Dr. Robert E. Warren**, 68, Nashville, died at his home July 15, after an illness of two years. He graduated from Vanderbilt University School of Medicine. He retired in 1945.

★

**Dr. T. B. Anderton**, 84, died at his home in Franklin County July 5. He graduated from Vanderbilt University School of Medicine in 1892. He was Franklin County Health Officer for almost 40 years.

★

**Dr. A. B. Thach, Sr.**, 68, died in Nashville July 27. He graduated from University of Tennessee Medical School in 1907.

## PROGRAMS AND NEWS OF MEDICAL SOCIETIES

### Andrew Jackson Academy First to Inaugurate Own PG Courses

The Andrew Jackson Academy of General Practice, moving to meet a vital need, will inaugurate in October its own courses in Postgraduate instruction available to any GP in Tennessee at no cost.

The courses, made possible by the cooperation of Vanderbilt University School of Medicine, will offer from 24 to 30 hours of formal education in 12 months.

Plans for the courses were worked out by Academy President Paul E. Purks of Nashville and the PG Committee composed of Dr. D. J. Johns of Nashville, Chairman; Dr. James P. Anderson, Nashville; Dr. John W. Frazier, Nashville; and Dr. L. C. Jackson, Dickson.

The training program, adopted by the Academy at an enthusiastic night meeting at Lebanon, August 2, consists of two phases:

1. Two lectures by Vanderbilt physicians on each of the even-month meeting nights of the Academy, running a total of about two hours with discussion, the first class to be in Pulaski, October 11.
2. Two full days of instruction, with pa-

tient demonstrations, at Vanderbilt, running six to eight hours each, one in the fall and one in the spring, dates to be announced later.

No registration fees will be charged because the Directors of the Tennessee Academy of General Practice voted on July 29 to finance from the treasury the nominal total cost of the course. The Directors voted to finance similar courses in East and West Tennessee if GP's in those areas wished to follow the Andrew Jackson pattern.

The PG Committee emphasized, however, that the A-J courses are open to all GP's in the state, regardless of whether they are affiliated with organized medicine.

Vanderbilt's contribution was worked out by Dr. R. H. Kampmeier, Vanderbilt's associate professor of medicine and chairman of V-U Postgraduate Instruction in medicine. He explained the plan at the Lebanon meeting.

Dr. Purks instructed the committee to set up plans to promote and operate the training program. The membership will be polled to determine the dates for the two full days at Vanderbilt. The lectures will consume the full program time for the bi-monthly Academy meetings on the first Thursday nights of the even months. Only exception is the Pulaski meeting set on October 11 to avoid conflict with the Nashville Academy of Postgraduate Instruction.

The Lebanon meeting essayist was Dr. Max K. Moulder, Nashville urologist, who discussed advances in the treatment of diseases of the female urethra.

Dr. Bate Dozier of Nashville was presented as the guest of honor in tribute to his selection as the Academy's General Practitioner of 1951.

Those attending the meeting were Nashville Drs. Purks, Johns, Dozier, Anderson, Kampmeier, Irving Hillard, W. M. Hardy, and R. K. Galloway; and Drs. L. C. Jackson of Dickson; O. Reed Hill, Sam McFarland and R. C. Kash of Lebanon; E. P. Johnson and Windell Wilson of Old Hickory.

The Woman's Auxiliary to the Academy held its meeting at Lebanon, presided over by Mrs. L. C. Jackson, vice-president. Others attending were Mrs. Bate Dozier.

Mrs. O. Reed Hill, Mrs. James P. Anderson, Mrs. Wendell Wilson, Mrs. E. P. Johnson, Mrs. Paul Purks, Mrs. Irving Hillard, Mrs. R. H. Kampmeier, and Mrs. Ed L. Bridges.

★

### New Officers for Upper Cumberland Medical Society

Dr. C. A. Collins of Monterey is the new President of the Upper Cumberland Medical Society, elected at the recent 57th Annual Session.

Other officers elected were: Dr. John Killeffer of Chattanooga, First Vice-President; Dr. Thurman Shipley, Cookeville, Second Vice-President and Dr. L. M. Freeman of Granville, re-elected Secretary-Treasurer.

★

### Five-County Society Attendance Near Perfect

Dr. Park Niceley and Dr. Harry Jenkins of Knoxville presented medical essays on "Back Pain" and "Vaginal Bleeding During Pregnancy" at the Five-County Medical Society meeting in Jamestown July 19.

Dr. C. E. Reeves of Gainesboro received a belatedly awarded 50-year pin after he had practiced medicine in the Upper Cumberland Area for 62½ years. Dr. W. A. Howard of Cookeville made the presentation. Dr. Reeves is the only living charter member of the Upper Cumberland Medical Society. At the insistence of members of the Five-County Society, he related two of his favored anecdotes.

Thirty-nine of the forty-three members of the Society were present. This set an all-time record for attendance.

Those present were: Drs. L. R. Anderson of Gainesboro, President; William H. Andress of Sparta, Secretary-Treasurer; Tom and Jack Moore of Algood; Guy C. Pinckley, J. Peery Sloan, I. R. Storie, D. D. Norris of Jamestown; Dr. Champ E. Clark of Celina; Dr. Malcolm E. Clark of Byrdstown; Drs. H. F. Lawson, V. L. Lewis, Paul Ervin, Robert M. Metcalfe, J. L. Gardner, Alfred

M. Taylor, W. E. Evans of Crossville; C. E. Reeves, W. T. Anderson, and R. C. Gaw of Gainesboro; W. M. Brown, Myrtle Lee Smith, F. L. Sidwell, A. B. Qualls of Livingston; C. B. Roberts, E. B. Clark of Sparta; C. A. Collins and T. M. Crain of Monterey; J. T. DeBerry, William A. Hensley, Thurman Shipley, J. Fred Terry, and W. A. Howard of Cookeville.

The next Five-County Society meeting will be held in Livingston on the third Thursday in September.

The Knoxville Academy of Medicine at its meeting on July 17 devoted the program to Civilian Defense. The following discussions were presented:

"Medical Aspects of Civilian Defense" by Dr. John Leshner

"Biological Aspects of Atomic Warfare" by Mr. B. F. Holtman

"Radiological Aspects of Atomic Warfare" by Mr. Robert B. Birkoff

"Nursing Aspects of Atomic Warfare" by Miss Dorothy Hocker, R.N.

## MEDICAL NEWS IN TENNESSEE

### University of Tennessee College of Medicine

Dr. O. W. Hyman, Dean, has announced a Centennial Celebration to be held at the University of Tennessee College of Medicine on October 4. This will celebrate the first classes held on October 6, 1851 in the Medical Department of the University of Nashville. This school was merged in 1909 with the Medical Department of the University of Tennessee in Nashville, and two years later the Board of Trustees of the University of Tennessee moved the College of Medicine to Memphis to be joined to the College of Physicians and Surgeons of that city. In 1913 the Memphis Hospital Medical College was merged with the College of Medicine of the University of Tennessee and finally in 1914 the Medical Department of the Lincoln Memorial University of Knoxville transferred its students to the University of Tennessee College of Medicine.



At the time of the celebration the two new University buildings, The Cancer Research Laboratory and the Institute of Pathology, will be opened. Dr. John W. Cline, president of the American Medical Association, will deliver the address at a dinner meeting, on the night of October 4, to discuss medical education as related to present-day problems. A scientific program is also scheduled for that day, in which outstanding scientists of the country will take part.

A new clinic known as the Family General Practice Clinic, emphasizing the "family doctor" type of medical practice, will be established in the Out-Patient Department of John Gaston Hospital by the University of Tennessee College of Medicine and the hospital Board of Trustees. In this clinic, it will be pointed out to advanced medical students what a capable general practitioner is able to do effectively and when his limitations are reached, so that the student will learn when to refer a patient to a specialist. General practitioners from Memphis and neighboring small towns will serve as visiting physicians at the clinic to give a student the benefit of actual experience in general practice.

The various specialty clinics will continue to operate as in the past. This new clinic will enable them to give more thorough service to those first screened by the family clinic. It will be operated under the Division of Preventive Medicine and will be directed by Dr. Paul Williamson, a general practitioner of Vernal, Utah.



Dr. R. R. Overman, of the Department of Physiology at the University of Tennessee Medical Units, has been named director of a new laboratory of clinical physiology established to permit more research at John Gaston Hospital. It will be housed in the remodelled old Pathology Building, its name being changed to the Institute of Clinical Investigation. Basic physiological determinations will be performed for all clinical divisions of the College of Medicine.



The University of Tennessee Medical Unit's Cancer Research Laboratory has

been completed at a cost of \$499,088.00. Funds were made available by the National Cancer Institute of the United States Public Health Service.



The American Cancer Society has awarded \$4995 to Dr. C. H. Eades, Jr., for the study of the amino acid content of the blood and urine. If the "pattern" of amino acid content reveals a significant metabolic difference between normal and cancerous individuals, it might lead to a diagnostic test on this difference.



The United States Public Health Service has awarded grants totaling \$45,192 to investigators of the University of Tennessee Medical Units. A grant of \$23,196 was awarded Doctors Sprunt, Dulaney and Conger of the Division of Pathology and Bacteriology for the continuation of one awarded last year to re-evaluate old test for cancer and to develop a new one. A \$24,991 award to the College of Medicine is for the improvement in its diagnosis and treatment of cancer by undergraduate medical students and graduates.



The Memphis Heart Association, Inc. has awarded grants totaling \$3,950 for research at the University of Tennessee Medical Units. The Division of Surgery was awarded \$1,200 to continue research on hypertension, for better diagnostic tests to determine more accurately which patients will be most benefited by surgical treatment. Dr. R. V. Brown, of the Department of Pharmacology, was granted \$1,300 to continue his study on a method of determining the ability of the body to control the level of the blood pressure. Dr. R. C. Little, of the Department of Physiology, was awarded \$650 for investigation of the response of various parts of the heart to stress. Dr. L. V. Middlesworth, of the Department of Physiology, was awarded \$500 for the production of high blood pressure in animals by operation.

## Special Letter from State of Tennessee Department of Public Health

TO: Physicians in Tennessee

SUBJECT: Malaria among soldiers returning from  
Korea

During this month, there have been reported to us twenty-nine cases of malaria among soldiers recently returned from Korea. Because of the possibility of the Korean strain of *P. vivax* becoming established in this State, let me urge you to report *all* malaria cases seen, to your local health department or to this office. In addition, we shall appreciate your sending us any positive malaria slides that you find so that we may forward them to the National Malaria Slide Depository.

Each case reported to us is being investigated. When *Anopheline* mosquitoes are found near the homes, the premises are being sprayed in order to prevent the spread of the disease.

Your cooperation will be appreciated.

Very truly yours,  
R. H. HUTCHESON,  
Commissioner.

## PERSONAL NEWS

**Dr. Frank T. Mitchell**, practicing pediatrician for 34 years, will be Chief-of-Staff of the one million eight hundred sixty thousand dollar addition to the Le Bonheur Children's Hospital in Memphis.

★

**Dr. Wendell W. Wilson** is now associated with Dr. Eugene P. Johnson, with offices in the Doctor's Building in Old Hickory. Dr. Wilson served 30 months in the U. S. Navy as a Lieutenant.

★

**Dr. Elgin P. Kintner** has assumed his duties as head of the Department of Pathology in Blount Memorial Hospital, Maryville. He recently has been associated with another pathologist in South Bend, Ind.

★

A grant of twenty-five thousand dollars to **Dr. Barton McSwain** of Vanderbilt University Hospital, to expand his cancer research, has been made by the Federal Security Administration. Dr. McSwain is the son of Dr. and Mrs. Horace McSwain of Paris.

**Dr. Henry Lyons** has moved from Burkesville, Ky., to Rogersville, Tenn., to join his father, Dr. James S. Lyons, in the operation of the Lyons Hospital. He was a 1944 graduate of Boston Medical College.

★

**Dr. W. Powell Hutcherson** and **Dr. Arch H. Bullard** have opened an office to practice obstetrics and gynecology in Chattanooga.

★

**Dr. Frank S. Flannary**, Kingsport pediatrician, has been recalled to active duty with the U. S. Air Force.

★

**Dr. R. P. Henderson** will join the staff of the Steadman-Guy Clinic in Henderson after serving as resident in radiology at John Gaston Hospital in Memphis.

★

**Dr. Joseph W. Johnson, Jr.**, his wife and their five-year-old daughter swam ashore to safety after their private plane crashed in Lake Nimrod, Arkansas on a flight from Chattanooga to the West Coast.

Dr. Johnson was piloting the plane when motor trouble developed, and he made an emergency landing close to the shore.

Dr. Johnson, Medical Director of the Inter-State Life Insurance Company was en route to Colorado City, Colorado where he was guest speaker at the Medical Section of the American Life Convention. At the close of the Convention, he flew on to California. There was no report of any injuries.

★

**Dr. Charles Woffard**, Johnson City cardiologist, has been re-elected president of the Appalachian Chapter, East Tennessee Heart Association. Other officers, all re-elected, are Dr. Homer P. Williams, Elizabethton, Vice-President; Dr. Ferguson Wood, Secretary; and Dr. Tom Happell, Jr., Treasurer. Dr. E. L. Caudill, Sr., of Elizabethton was elected a new Director.

★

**Dr. R. B. Wood** of Knoxville has been elected to a third term as president of the East Tennessee Heart Association. Dr.



Wood has been commended for the excellent work he has done for the Heart Association.



**Dr. Frederick V. Vance, Jr.**, son of Mayor Fred V. Vance of Bristol, began practicing medicine in Bristol in mid July, specializing in internal medicine.



**Dr. Luke Ellenburg** has opened an office for the practice of pediatrics in Greeneville. A native of Greeneville, he has been resident pediatrician at Vanderbilt Hospital for the past two years.



**Dr. James W. Richardson** has opened an office for practice in Morristown after completing his internship at Erlanger Hospital in Chattanooga. After pre-med work at the University of Tennessee, he received his M.D. at Emory University, Atlanta.



**Dr. Harry E. Jones**, a 1944 graduate of Vanderbilt Medical School recently completed residency training at Vanderbilt Hospital and has opened offices in Chattanooga for the practice of obstetrics and gynecology. During duty with the Army Medical Corp, he was appointed chief of the ob-gyn section of an army hospital in Osaka, Japan.



**Dr. Walter Perry Keith** has recently become associated in the practice of obstetrics with Dr. C. M. Hooper and Dr. R. H. Giles in Chattanooga.



**Dr. O. M. Derryberry** of Chattanooga has been named Director of the Tennessee Valley Authority Division of Health and Safety, succeeding the late Dr. E. L. Bishop.



**Dr. Melvin J. Johnson, Jr.**, until recently Chief Resident in Surgery at Erlanger Hospital, has become an associate at the Cecil Newel Clinic in Chattanooga.

## WOMAN'S AUXILIARY

### Five-County Group Discusses Legislation

The Woman's Auxiliary to the Five-County Medical Society met in Gainesboro, July 19, to discuss legislation and public service.

Mrs. J. Fred Terry of Cookeville, President, conducted the meeting, and Mrs. L. R. Dudney of Gainesboro, Secretary, recorded the proceedings.

Ed Bridges, Public Service Director of the Tennessee State Medical Association, reported that the Association passed eight of the nine bills it sponsored in the 1951 General Assembly. The ninth bill was withdrawn for revamping and will be re-introduced in the next session of the Legislature.

A spirited question and discussion period followed the talk.

Those attending were: The officers and Messrs. W. T. Anderson and L. R. Anderson of Gainesboro; William M. Brown and F. L. Sidwell of Livingston; Mrs. Tom Moore and Jack Moore of Algood; Mrs. Thurman Shipley, J. T. DeBerry, Kenneth Haile, and William Hensley of Cookeville.

## BOOK REVIEW

**A TEXTBOOK OF THE PRACTICE OF MEDICINE.** Edited by Frederick W. Price, R.F.S. Ed., M.D., C.M.Ed., F.R.C.P. Lond., Hon. M.D. Belf. Pp. 2,076. 8th Ed. Oxford University Press, New York, 1950. \$9.00.

This is an English textbook, with sections contributed by some thirty physicians of Great Britain, most of them from the London institutions and hospitals.

The book is very comprehensive covering the many diseases usually included in textbooks of medicine in great detail. Nevertheless at many points the book is not quite up to the times if American textbooks may be taken as a criterion. British conservatism may account for the space spent on arsenotherapy of syphilis and hesitancy in accepting penicillin alone as a satisfactory antisymphilitic agent. The omission of BAL (British anti-lewisite) in the management of arsenical intoxication is nothing short of surprising. B<sub>12</sub> is not mentioned, nor is dramamine, though a light abdominal belt is not to be scoffed at in the control

of sea-sickness. Some of our newer antibiotics are not mentioned though all textbooks are notoriously outdated in this respect.

The Europeans are more loathe to give up old remedies such as strychnine and tincture valerianate, pharmaceuticals which some of us have not prescribed for a couple of decades.

The paper used in making up these more than two thousand pages is thin. This and the typography used make it a book not easily read.

Though this is a satisfactory textbook on medicine it offers no advantages over our standard American textbooks.

R. H. K.

## ANNOUNCEMENTS

*Dear Doctor:*

We have received a letter from Dr. Ralph B. Hogan, Chief of Laboratory Services, Communicable Disease Center, requesting that all specimens sent to the Communicable Disease Center for examination be sent to the State Laboratory for transmission to C.D.C. It is our assumption that this does not apply to specimens of body fluids, secretions, excretions, tissues, and arthropods to be examined for viruses, which specimens should be sent directly to the Virus Laboratory.

A portion of Dr. Hogan's letter follows:

"It is felt to be essential both from the standpoint of the State Laboratories and C.D.C. that procedures be initiated which will be effective in eliminating the flow of reference diagnostic specimens to the C.D.C. Laboratories directly from private physicians and private laboratories. Methods of accomplishing this have been discussed with the members of the Committee on Inter-Relationships of State and Provincial Public Health Laboratories and Federal Laboratories as well as the executive Council of the Conference.

"It is with the knowledge and approval of this Committee and the Executive Council that the Laboratory Services of C.D.C. effective August 1, 1951, will accept no specimens directly from private laboratories or private physicians. Only those non-routine specimens which are sent by or through the State Laboratories will be acceptable.

"It is requested that this information be disseminated to all medical personnel con-

cerned within your state. In the event that any specimens are sent directly to C.D.C. from private physicians or private laboratories after August 1, 1951, those specimens will be returned unexamined to the appropriate State Laboratory for processing as the Director of that Laboratory sees fit."

We are indeed sorry that direct transmission from you to C.D.C. of specimens, other than those indicated, can no longer be made. However, if specimens are sent to the Central Laboratory for tests which we are not now in a position to handle, we will gladly forward these specimens to C.D.C., so that you may receive a report at the earliest possible time.

Please note particularly the last paragraph quoted from Dr. Hogan's letter.

Very truly yours,  
R. H. HUTCHESON  
Commissioner



### International College of Surgeons

The Sixteenth Annual Assembly of the United States Chapter of the International College of Surgeons will be held in Chicago on September 10th through the 13th, 1951, with headquarters at the Palmer House.

An excellent program has been arranged. Prominent surgeons from the United States and other countries will participate. Scientific sessions will be held by all specialty sections of the United States Chapter.

The Annual Banquet will take place on Wednesday evening, September 12. Mr. Lawrence Abel, F.R.C.S. (Eng.), of London, will be the principal speaker.

The assembly will conclude with the convocation, to be held in the Civic Opera House on the evening of September 13. Senator Estes Kefauver will deliver an address on "The America of Tomorrow."

Hotel reservations may be arranged by writing to the Housing Division, Chicago Convention Bureau, 33 North LaSalle Street, Chicago 2, Ill.



### The American Congress of Physical Medicine

The American Congress of Physical Medicine will hold its twenty-ninth annual scientific and clinical session September 4-8, inclusive, at the Shirley-Savoy Hotel, Denver, Colo. All sessions will be open to physicians and other professional personnel. The annual instruction seminars will be held September 4-7. These seminars will be offered in two groups. One set of ten lectures will



consist of basic subjects and attendance will be limited to physicians. One set of ten lectures will be more general in character and will be open to physicians as well as to therapists, who are registered with the American Registry of Physical Ther-

apists or the American Occupational Therapy Association. Full information may be obtained by writing to the American Congress of Physical Medicine, 30 North Michigan Avenue, Chicago 2, Ill.



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# Journal of the Tennessee State Medical Association

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*Everyone recognizes that the maintenance of water and electrolyte balance is a matter of life and death. With the passage of years it has been realized that this consists of more than merely giving glucose or saline solutions parenterally. The clinician must be prepared to use specific electrolytes and fluid with flexibility as demanded by circumstances. The author has presented in a simple fashion the basic principles of a subject too often confusing to the doctor.*

## FLUID AND ELECTROLYTE BALANCE IN HEALTH AND DISEASE\*

ANN S. MINOT, Ph.D., Nashville, Tenn.\*\*

A problem frequently confronting the clinician is that of maintaining a reasonably normal state of fluid and electrolyte equilibrium in patients who are temporarily unable to accomplish this for themselves. Two factors are mainly responsible for the fact that this type of supportive therapy remains a problem which cannot be solved in terms of any satisfactory routine procedure. In the first place, a variety of qualitatively different distortions of normal fluid and electrolyte relationships result from different clinical disorders. In as much as the deviations from normal differ, so must the corrective measures be varied if the therapy is to be effective. Secondly, complicating factors such as cardiac or renal insufficiency, capillary injury or deficiency of plasma protein may greatly alter the response in individual patients even when the same derangement is being treated by the same supportive measures. Thus it becomes necessary to determine insofar as we can for each patient the type and extent of derangement and then to select supportive measures qualitatively and quantitatively adapted to his individual needs and limitations. The purpose of this paper is to review some of the familiar basic prin-

ciples and general information which should be taken into consideration when a clinician outlines his plan of therapy.

### Normal Body Water

Normally about 60 to 70 per cent of the body weight is water. Thus in a man weighing 70 kg. there are about 50 liters of water partitioned roughly into 35 liters of intracellular and 15 liters of extracellular fluid. There are two compartments of extracellular fluid: 11-12 liters of interstitial fluid which surrounds and makes up the immediate external environment of each cell, and about 3-4 liters of intravascular or plasma water. These subdivisions are of course in dynamic rather than static equilibrium as there is a constant interchange of water and of those dissolved substances to which the separating membranes are permeable. Capillary blood pressure, tissue pressure, osmotic forces including the colloidal osmotic pressure of plasma and tissue proteins, the degree of permeability of the separating membranes and renal activity are all factors which collaborate in health to keep the total body water as well as the partitions of this total within the rather narrow ranges of physiological fluctuation.

### Electrolyte Pattern of Normal Body Fluids

In Figure 1 is presented with some minor alterations Gamble's familiar diagrammatic picture of the normal electrolyte pattern of plasma. We have in plasma a mixture of dissolved and completely ionized salts. Elec-

\*Presented before the Nashville Academy of Medicine and Davidson County Medical Society, September 4, 1950.

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trical neutrality must of course be maintained and thus when the concentration of each ion is expressed in terms of chemical equivalents per unit volume the sum of the negatively charged anions is equal to the sum of the positively charged cations. Sodium is by far the most prominent cation with smaller but vitally important concentrations of potassium, calcium and magnesium. The most conspicuous anion is chloride, with bicarbonate second, and small amounts of phosphate, sulphate, organic acid radicals and a small portion of plasma protein functioning as an anion at the pH of body fluids. The pH of plasma of a normal person at rest usually lies between 7.35 and 7.45—a range of slight but biologically im-

the concentration of  $\text{BHCO}_3$  in relation to the concentration of  $\text{H}_2\text{CO}_3$  (dissolved  $\text{CO}_2$ ). At pH 7.40 the ratio of

$$\frac{\text{BHCO}_3}{\text{H}_2\text{CO}_3}$$

when the concentrations of each are expressed in comparable units is about 20:1.

A similar diagrammatic picture of the other compartment of extracellular fluid—the interstitial fluid—would depict an almost identical pattern with the single difference of a lower protein content due to the barrier to the escape of plasma protein imposed by the normal capillary endothelium. The electrolyte pattern of intracellular fluid is, on the other hand, quite different. Here we find protein and phosphate filling much more conspicuous spaces on the anion side while an even more striking difference is that potassium rather than sodium is the principal cation—a fact that must be kept in mind when abnormal conditions cause a transfer of intracellular fluid into the extracellular compartments.

#### ELECTROLYTE COMPOSITION OF BLOOD PLASMA

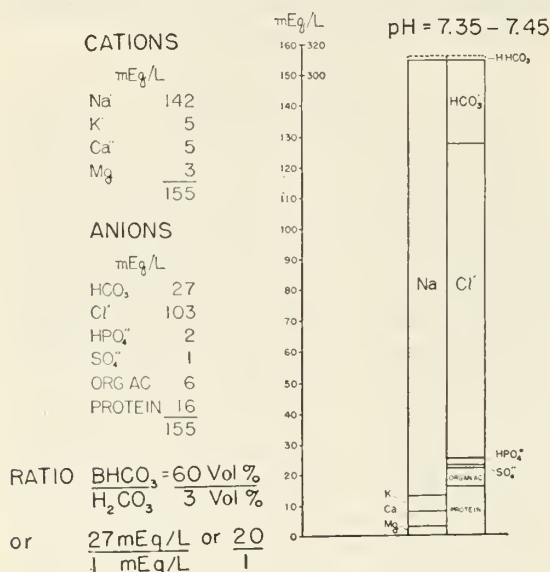


FIGURE 1. Adapted from Gamble "Chemical Anatomy, Physiology and Pathology of Extracellular Fluid." (Harvard University Press.)

portant alkalinity. Sodium chloride in solution does not alter the neutral reaction of the water in which it is dissolved. Salts of weak acids and strong alkalies, represented here by the bicarbonates, the phosphates and proteinates give a somewhat alkaline solution due to hydrolysis—a phenomenon which we need not discuss at this point. Since the bicarbonates are the most prominent salts of this type in plasma we can, with justification, think of the concentration of  $\text{BHCO}_3$  as a measure of the alkali reserve. The pH of plasma depends upon

#### Normal Regulation of Fluid and Electrolyte Equilibria

Now to what does the normal individual owe his ability to go his carefree way with no better guides than the dictates of thirst, his taste for salt and his appetite for various foods and yet to maintain the various compartments of total body water each with its characteristic electrolyte pattern which varies only within relatively narrow physiological limits? Many factors are of course involved. Perhaps most important is the fact that under normal conditions no significant amount of salt is lost from the body except by the carefully regulated portal of exit by way of the kidney which may be thought of as the guardian of the composition of the body fluids. Under the control of normally balanced hormonal influences which regulate the excretion of salts and water, the kidney tenaciously guards the tonicity of body fluids by prompt excretion of excess water or salt that may be introduced. On the other hand, when the intake is less liberal tubular reabsorption of water (up to the capacity of the kidney to concentrate) and of individual ions to threshold levels guards against any rapid depletion. Other renal mechanisms

which include the selective excretion of acid or alkaline phosphates and the formation of ammonium ions for excretion with excess acid radicals are important factors in regulating the bicarbonate concentration and hence the pH of body fluids.

#### **Clinical Conditions Leading to Abnormal Fluid and Electrolyte Balance**

Clinical conditions which would make it necessary for a patient to have supportive help in order to maintain a normal fluid and electrolyte equilibrium would include:

- (1) Lack of ability to ingest sufficient water or salts to meet inevitable losses;
- (2) Excessive losses of salts and water by unusual pathways, e.g., loss of gastro-intestinal secretions or profuse sweating;
- (3) Metabolic production of excessive amounts of acid as in uncontrolled diabetes;
- (4) Renal dysfunction whether due to pathology in the kidney itself or secondary to circulatory failure or to abnormalities in hormonal regulation of renal function.

In these and many other similar derangements it becomes the problem of the clinician to institute supportive and replacement therapy to prevent or correct distortions of the normal picture.

#### **Correction of Simple Water Deficit**

Let us start with a relatively simple situation. What do we owe in terms of supportive fluid administration to a patient who is in a relatively normal state of equilibrium and who is suffering no unusual fluid loss but who is temporarily unable to take water by mouth? In such an individual there is a constant unavoidable loss of water by vaporization from the lungs and skin and a certain amount of water is obligatory for the excretion of dissolved waste products by the kidneys. The magnitude of such loss is of course somewhat variable and conditioned by such factors as respiratory rate, body and environmental temperatures, the amount of waste products to be excreted and the capacity of the kidneys to put out a concentrated urine. However under reasonably normal conditions we can assume

that an adult entirely deprived of fluid intake incurs a loss of about 2000 cc. of water by these pathways in 24 hours. The salt loss under these conditions is, however, practically negligible—certainly no more than a gram per day. Thus the solution best adapted for parenteral administration to meet this patient's deficit is 5% glucose rather than normal saline. Two liters of normal saline would contain 17 grams of salt, most of which is not needed. To excrete 15 grams of salt would increase the obligatory urine volume by 500-1000 cc. If not excreted the excess electrolyte would increase the tonicity of the body fluids and aggravate the patient's sensation of thirst. Thus the patient will be less comfortable and have a greater net water deficit at the end of the next 24 hours than he would have incurred had the fluid given been free of electrolytes. Although not as extreme, the administration of normal saline under these conditions represents an error analogous to the drinking of sea water in an attempt to quench thirst and is definitely not an effective way to maintain hydration when the deficit is almost solely due to lack of water.

#### **Correction of Combined Loss of Water and Electrolytes**

Next, let us consider the needs of a patient who in addition to being unable to take water by mouth is losing a considerable volume of secretions either because of vomiting or diarrhea or by tubal drainage from one level or another of the gastro-intestinal tract. The diagrams presented in Figure 2 show the approximate compositions of the various gastro-intestinal secretions. The total concentration of electrolytes in all these fluids is about the same as that of plasma but each differs characteristically in the proportions of individual ions which make up this total. Thus chloride is the only anion present in significant amounts either in the mucous secretion of the stomach where it appears as salts of sodium and potassium, or in gastric juice where it is put out as hydrochloric acid. The intestinal juices on the other hand contain a higher concentration of bicarbonate and a smaller proportion of chloride anions in



## ELECTROLYTE COMPOSITION OF GASTRO-INTESTINAL SECRETIONS

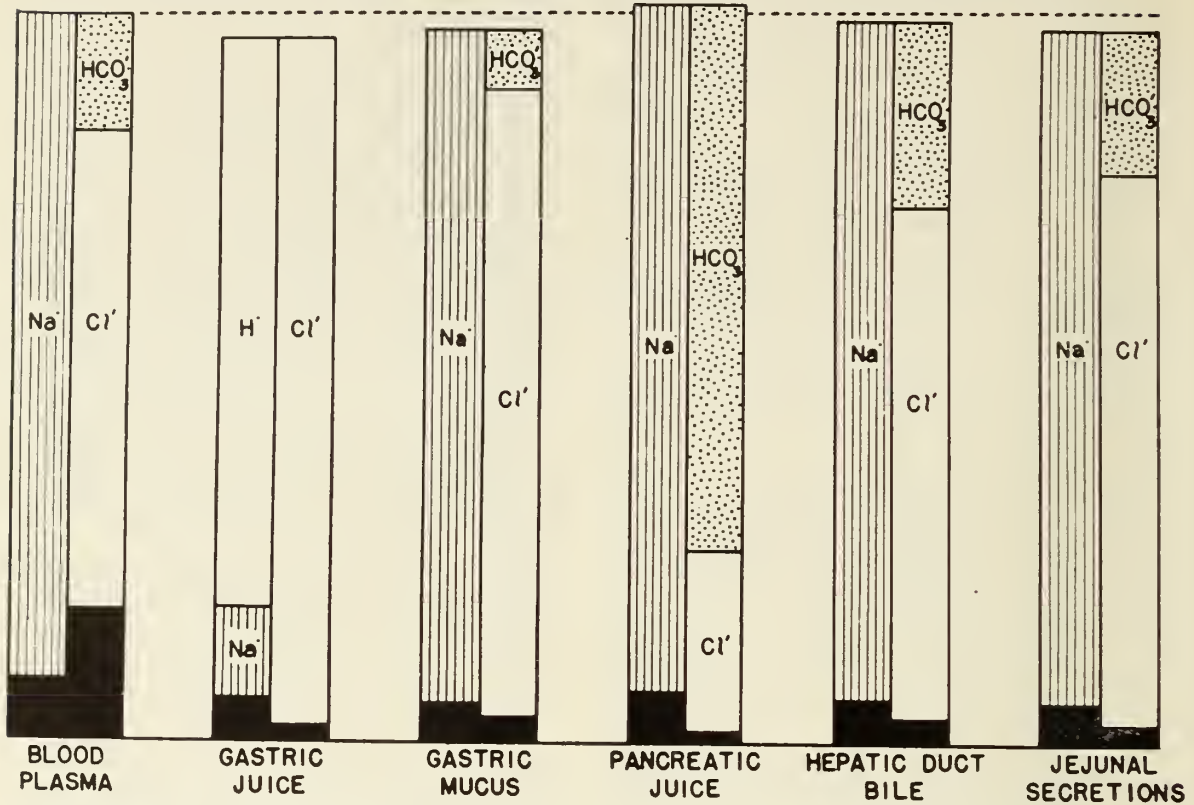


FIGURE 2. From Gamble "Chemical Anatomy, Physiology and Pathology of Extracellular Fluid." (Harvard University Press.)

equilibrium with essentially the same cations which are present in plasma.

When a patient has lost both salts and water it is a fundamental principle that both electrolytes and water must be replaced before normal fluid equilibrium can be restored. The specific choice of the appropriate salts to be replaced is of course dictated by the recognition of what electrolytes predominate in the secretions that are being lost. Let us say that our hypothetical patient is losing a liter of gastric secretions per day in addition to the unavoidable water loss by evaporation and urinary output. This raises his daily fluid deficit to 3 liters and the water lost by way of the stomach carried with it about 150 meq liter of chloride partly as salts and partly as hydrochloric acid. A continued unreplaced loss of this kind leads to a more complicated derangement of normal equilibrium in the body fluids than might be anticipated merely on the basis of the amount of total electrolyte lost. Coincident with the disproportionately rapid loss of acid and

chloride ion there is an increase in bicarbonate in the blood and hence a condition of alkalosis. Though not indicated in the diagram gastro-intestinal secretions contain a considerably higher concentration of potassium ions than is present in plasma. Continued loss of potassium in such secretions added to the inevitable urinary losses in a fasting individual leads to a potassium depletion.

One liter then of the replacement fluid to be administered to our patient should contain about 150 meq/l of chloride (the concentration of normal saline). Ideally both potassium and sodium chlorides should be replaced since a potassium debt cannot be paid and is indeed only further aggravated by replacement of sodium salts alone. If the loss of stomach secretions is only transient we can all no doubt cite many instances where the administration of physiologic sodium chloride solution in amounts equivalent to the volume of secretion lost has apparently been adequate therapy. With more prolonged and ex-

tensive losses, however, serious symptoms of potassium deficiency may develop unless potassium salts are included in the replacement fluid. A solution containing 10 meq/l of KCl (twice the concentration of K in plasma) and 140 meq/l of NaCl would be suitable for this purpose. But will this administration of neutral salts accomplish anything toward correcting the alkalosis which has developed? In vitro it of course would not, but with the cooperation of normally functioning kidneys the chloride will be retained while the accumulated excess of bicarbonate is excreted in an alkaline urine. Thus we can meet our patient's daily needs with 2 liters of 5% glucose plus 1 liter of chloride solution.

All too frequently in cases of persistent vomiting a patient is first seen only after a serious deficit of fluid and electrolytes has already occurred. In such cases replacement therapy is calculated on a more generous basis in order to meet not only the daily needs and loss but gradually to make up the preexisting deficit—a task which may take several days to accomplish. In these more massive replacements it becomes increasingly important to replace appropriate amounts of potassium as well as of sodium chloride. If laboratory facilities are available, the daily determination of the  $\text{CO}_2$  combining power and the chloride content of serum and of the chloride in the urine are useful guides to the adequacy of treatment. Lacking these a reasonably accurate calculation of the requirements can be arrived at on the basis of the length of time that fluid intake has been inadequate together with a rough estimate of the volume of gastric secretions that has been lost.

In conditions involving a significant loss of intestinal secretions the body fluids become depleted of bicarbonates more rapidly than of chlorides. The loss of alkali reserve leads to a condition of acidosis. Again there is a considerable loss of potassium. The electrolyte imbalance is more effectively corrected by the administration of appropriate amounts of alkalinizing salts rather than by chlorides alone. Alkali may be administered as sodium bicarbonate or as sodium lactate which produces its chemical equivalent of sodium bicarbonate if the lactate portion of

the molecule is completely utilized by the body. One half gram of  $\text{NaHCO}_3$  or 6.5 cc. of a molar solution of sodium lactate per kilogram of body weight will raise the  $\text{CO}_2$  combining power of the body fluids by approximately 20 volumes per cent. Except for cases of extreme depletion where more rapid corrective measures may be needed, Darrows solution which is commercially available and which contains both sodium lactate and potassium salts represents a convenient and suitable means for replacing electrolytes lost in intestinal secretions.

#### Necessity of Replacement of Lost Electrolytes

Having placed all this emphasis on the importance of recognizing electrolyte loss and of making adequate replacements, we may well raise the question as to what would happen if this feature were omitted and if attempts were made to overcome the dehydration with glucose solutions alone. The water introduced would further dilute the already depleted electrolytes. The kidneys under normal hormonal control would promptly excrete this water. Under these circumstances the fact that a considerable volume of urine is put out should give no false assurance that the patient is becoming adequately hydrated. Diuresis of water that he can ill afford to lose is occurring because he cannot retain water unless salts are available to maintain the normal tonicity of the body fluids. Some additional urinary loss of electrolytes will inevitably occur during the diuresis and the net result will be a patient with a greater fluid and electrolyte deficit than he had before such ill advised therapy was instituted.

There are many other types of upset equilibrium such as depletion of alkali reserve by excessive production of ketone acids in diabetes, the salt loss in Addison's disease, etc., which we might consider if time allowed. However, conditions we have discussed in some detail have, I hope, indicated the importance of considering for each individual case the quantity and quality of fluid and electrolyte loss and of selecting for replacement therapy those solutions best suited to overcome the deficits. In the short time which remains we may well discuss a few of the many factors which so often make the best calculated supportive



treatment more difficult than we have yet indicated.

### Complicating Factors in Fluid Replacement Therapy

The administration to patients with a *deficiency of plasma proteins* of what appears to be an appropriate amount and type of fluid may, instead of restoring normal conditions, produce a discouraging bog of generalized edema or more dangerously may lead to pulmonary edema. The importance of transfusions of blood and plasma in the management of cases in which extensive burns or traumatic shock have caused a protein loss has been too widely publicized to need discussion here. Equally important, however, are the less obvious instances of increased capillary permeability or protein deficiency due to renal loss of albumen, or to malnutrition which often make the restoration of plasma colloids necessary before a normal distribution of body water can be maintained.

All too frequently, as every clinician knows, the handicap of some type of *cardiac insufficiency* forces a compromise between the administrations that would seem desirable for a patient except for the danger of overtaxing the limited capacities of his heart.

Then we come to the group of patients for whom supportive therapy must be managed without the extremely helpful cooperation of normal renal function. We never fully appreciate how much a patient's kidneys help us in our attempts to restore or maintain fluid and electrolyte equilibrium until we try to accomplish it in spite of *badly functioning or completely non-functioning kidneys*.

Let us consider for a moment the management of a case of acute completed renal shutdown—the condition usually referred to as *lower nephron nephrosis*—which can apparently result from a variety of causes. Here we must adapt our administrations to meet the needs of a patient who not only lacks the finer regulating mechanisms of the kidney, but also for whom the pathway for the excretion of excess water or salts has been temporarily blocked. Perhaps the most difficult thing for the attending physi-

cian in this situation is to control the almost irresistible impulse to try to reestablish urinary output by forcing large amounts of fluid. Experience, and often sad experience, has however repeatedly shown that kidneys which fail to put out urine when a patient is normally hydrated and has an adequate blood pressure cannot be forced into action by excess fluids. Instead the patient may well drown in this well meant but harmful surplus which he is unable to excrete. With no urinary output and no loss of gastro-intestinal secretions the daily fluid deficit amounts only to about a liter of practically salt free water vaporized by way of the lungs and skin. Thus unless there are previously incurred deficits to be replaced the total fluid administration should be limited to about a liter of glucose solution per 24 hours. If vomiting or other removal of gastro-intestinal secretions occurs during the period of anuria, the volume of such losses should be estimated and added to the basic fluid requirement, and that portion of the total fluid replacement necessitated by their loss should of course contain appropriate electrolytes.

As anuria continues urea which cannot be excreted accumulates in the body fluids causing the non protein nitrogen to rise in increments of about 20-25 mgm. % per day. The serum inorganic phosphate rises progressively leading to a secondary fall in calcium. The accumulation of acid metabolites causes a gradual decline in alkali reserve, and there is an increase in serum potassium. One has to restrain the natural impulse to give alkaline salts sufficient to correct the acidosis. To do this would not only raise the total electrolytes to abnormal levels, but also would probably cause attacks of tetany which are only prevented by a state of acidosis at the low levels of serum calcium which will persist as long as the inorganic phosphate remains elevated.

More elaborate plans which involve the use of continuous peritoneal lavage or so-called "artificial kidneys" have been devised and if properly managed offer a means of correcting some of the chemical abnormalities which develop. These procedures involve a tremendous amount of work and the constant supervision of several attendants.

With improper management they can be much more dangerous to the patient than the abnormalities they are designed to correct. The simple conservative expectant treatment we have discussed is usually adequate if the renal changes are transient and reversible. If kidney function does not return no procedure is of any permanent avail.

As renal activity is resumed adequate tubular capacity to reabsorb water and threshold substances usually lags behind the return of glomerular filtration of considerable volumes of urine. Thus the patient who has been anuric may rather suddenly become a salt losing nephritic. When this occurs a correspondingly more generous plan of supportive therapy is indicated to meet the increased needs for water and salt replacements. If laboratory facilities are available a most helpful guide to amount of electrolyte needed can be obtained by estimation of the salt content of the urine by determination of urinary chloride. The patient may by this time be able to meet these needs by oral intake; if not, saline which was so carefully avoided during the anuric period should now have a much more prominent place in the parenteral fluid administration.

### Summary

Time will not allow further discussion of specific details. We can summarize our discussion by saying that effective supportive or corrective administration of water and electrolytes can never resolve itself into a routine uniform procedure. This fact makes supportive therapy a perennially troublesome, but by no means a hopeless problem. One can set up for each patient at least a rough balance sheet with the basic requirements plus any unusual losses of salt and water on one side and on the other the amounts and type of replacement fluid most appropriate to make good the deficit. Sometimes the problem is as simple as this. More often specific abnormalities or limitations of the patient make necessary some adaptation of this simple plan to his individual needs. With attention to the basic principles involved a plan of fluid administration can be worked out which will deserve the term "supportive therapy" in that it helps to maintain a more normal internal chemical environment for the patient who is temporarily unable to accomplish this for himself.

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### Abdominal Myomectomy, Advantages and Disadvantages. Munnell, E. W., and Martin, F. W., Jr. *Am. J. Obst. & Gynec.*, 62:109, 1951.

When the fibroid uterus is to be operated upon, the usual surgical procedure chosen is hysterectomy. Not only is conservative myomectomy much less commonly employed but also, at the Sloane Hospital for Women at least, the relative frequency of this operation since 1932 has actually decreased. The authors present a series of 236 "significant" abdominal myomectomies. Twenty-six per cent of these myomectomy patients subsequently had successful pregnancies. The oldest patient to become pregnant was 42 years at time of enucleation. Vaginal delivery without increased obstetrical risk can be anticipated in the great majority of patients becoming pregnant after myomectomy. Cesarean section should be elected in that occasional patient in whom there is an infection of the myomectomy incision. In addition, some authorities feel that a deep, extensive myomectomy in-

cision is an indication for elective cesarean section. Myomectomy during pregnancy should be avoided if possible since it causes a high fetal loss by abortion. Myomectomy is indicated in the treatment of sterility and habitual abortion if other factors involved are normal. Good relief of symptoms is obtained after myomectomy. The disadvantage of myomectomy is a minimum recurrence rate of 21 per cent and a minimum reoperation rate of 12 per cent. Morbidity, mortality, and postoperative complications compare favorably with the same following hysterectomy. The maximum age limit for myomectomy is at least 42 years. Myomectomy is the desirable surgical treatment for fibromyomata uteri in women in the childbearing age desiring subsequent pregnancies and should be more frequently elected. It is completely justified by the value of preservation of fertility.

(Abstracted by Hamilton V. Gayden, M D., Nashville, Tennessee.)



*In this review of cases of obstruction of the small bowel the authors demonstrate very well the immense strides made by modern management in the reduction of mortality rates in a condition which formerly was commonly lethal.*

## RECENT ADVANCES IN THE TREATMENT OF ACUTE SMALL BOWEL OBSTRUCTION\*

### *An Analysis of Eighty Cases*

BYRON O. GARNER, M.D.,† Union City, Tenn., MARK L. SAYLOR, M.D., and JOSEPH E. HAMILTON, M.D., Louisville, Ky.

#### Factors Responsible for Decreasing Mortality

A review of the literature over the past few decades reveals that the mortality rates in acute intestinal obstruction are far from desirable. Statistics range from 60 per cent<sup>1</sup> at the turn of the century to 15 per cent in 1943 as reported by Dennis and Brown.<sup>2</sup> Even more recent studies indicate that mortalities below 10 per cent can be achieved. Moses<sup>3</sup> and McLaughlin and Busch<sup>4</sup> have presented series with mortality rates of 6.3 per cent and 8.8 per cent respectively. See Table 1.

Table 1  
MORTALITY OF ACUTE OBSTRUCTIONS\*

Year	Author	No. Cases	Per Cent Mortality
1907	Scudder	121	60
1915	Deaver and Ross	276	42
1920	Richardson	118	41
1929	Brill	124	36
1932	Vidgoff	266	46
1938	Wangensteen, et al.	157	17.9
1940	Leigh, Nelson and Swenson	76	13.2
1944	Dennis	53	15.1
1946	Hunt	41	7.3
1946	Moses	223	6.4

\*Adapted from Wangensteen<sup>6</sup> and Moses.<sup>3</sup>

\*Read before the Tennessee State Medical Association, Nashville, April 10-11, 1951.

†From the Surgical Service of the Louisville Veterans Administration Hospital and the Department of Surgery, University of Louisville School of Medicine. Published with the approval of the Chief Medical Director, Veterans Administration. The statements and conclusions published by the authors are the result of their own study and do not necessarily reflect the opinion or policy of the Veterans Administration.

A critical examination of the items responsible for improvement divulges several significant factors. Wangensteen's<sup>5</sup> introduction of the decompression technic in 1938 appears to be the first major cause for lower mortality rates. Earlier recognition of the condition and prompt institution of therapy have also accounted in large part for the decrease.

Wangensteen<sup>6</sup> pointed out the importance of restoration of fluid and electrolyte losses. In addition, he advocated blood replacement therapy. As a result of a clearer understanding of the pathologic physiology of intestinal obstruction, improvement in applying these principles has occurred. Familiarity with potassium deficiency and its correction is a recent addition to existing knowledge of fluid and electrolyte balance. Blood banks afford an ample and readily available supply of whole blood.

We believe that the most recent improvement in mortality rates is due in part to the chemotherapeutic and antibiotic agents now available. This is pointed out by Moses<sup>3</sup> and McLaughlin and Busch<sup>4</sup> also. In 1947 Blain<sup>7</sup> clearly demonstrated that the life of dogs with experimentally produced gangrenous small bowel could be prolonged from 35 to 100 hours by the use of massive doses of penicillin. Sulfonamides, penicillin, streptomycin, aureomycin, chloromycetin and others most certainly have contributed toward the reduction in fatalities during the past few years.

#### Report of Series

This series deals with 80 consecutive cases of acute mechanical obstruction of the

small bowel, proven by the obvious clinical picture and confirmed by X-ray, laparotomy or autopsy, which were collected at the Louisville Veterans Administration Hospital between April, 1946, and March, 1951.

Tendler's method of classification<sup>8</sup> has been adopted and Table 2 shows the causative factors. Veterans from both World War I and World War II were included.

Table 2

## CLASSIFICATION AS TO ETIOLOGY

Type Obstruction	No. of Cases
Neoplastic	1
Congenital bands	4
Postoperative adhesions	45
Postinflammatory adhesions	8
Inguinal hernia	7
Femoral hernia	2*
Incisional hernia	3
Internal hernia	3
Intussusception	1
Volvulus	2†
Mesenteric thrombosis	2
Other	2
Total	80

\*Both were Richter's type hernia.

†In one patient the entire small bowel except fourteen inches was resected.

The average age was 40 years, and ranged from 21 to 71 years. No significant relationship of obstruction to previously inflicted war wounds was found. The majority of the patients were male. Primary neoplasm of the small bowel was present in only a single patient, a 31-year-old colored male with multiple polyposis of the small bowel causing secondary intussusception and acute obstruction. Resection of 30 inches of gangrenous ileum and primary anastomosis were carried out. The patient survived but later died of carcinomatosis following malignant degeneration within the polyps. In one case, having volvulus of the small bowel, all but fourteen inches were resected. The patient is alive and fairly well one and one-half years postoperatively, but at present is being treated for nutritional deficiencies, especially those of iron and calcium. Mesenteric thrombosis accounted for two deaths.

Obstruction due to adhesive bands was present in 56 per cent of these cases. Dennis<sup>9</sup> reported the incidence to be 40 to 50 per cent and Rousselot<sup>10</sup> 38 per cent as a result of adhesive bands. External hernia accounted for 15 per cent of obstructions. Eliason and Welty<sup>11</sup> reported a mortality rate of 5 per cent in inguinal hernia but 31 per cent in femoral hernia. This further serves to emphasize the danger of femoral herniation. Both instances of femoral hernia in this study were Richter's type with no mortality.

Table 3

## MORTALITY ANALYSIS ACCORDING TO TREATMENT

Type of Therapy	No. of Patients	Deaths*	Mortality Per Cent
Non-operative catheter decompression	14	0	0.0
Operative without resection	52	3	5.8
Resection of gangrenous bowel	14	3	21.5

\*There was a total of 7 deaths, with over-all mortality of 8.8%. The seventh death was from cardiac arrest during induction of anesthesia. (Not included in computing operative mortality.)

Table 3 reveals an over-all mortality of 8.8 per cent for the 80 patients treated. The operative mortality was 9.1 per cent and 21.5 per cent when resection of gangrenous bowel was necessary. No patients treated conservatively died; needless to say, these were the least severe cases.

A synopsis of the seven deaths in this series might be instructive:

*Case 1.* E. P., a white male, aged 52, was admitted to the hospital 46 hours after the onset of nausea, vomiting and abdominal distention. After 20 hours of preparation with electrolyte replacement and decompression, laparotomy was undertaken. Thrombosis of the mesenteric veins with resultant infarction of nine feet of the terminal ileum was found. Resection of the gangrenous portion and ileocolostomy were carried out. Postoperatively, anticoagulant therapy, blood transfusions and penicillin were employed. On the third postoperative day right middle and lower lobe atelectasis accompanied by pneumonia developed. His blood pressure fell, cyanosis and death ensued. The terminal picture was that of peripheral vascular collapse.



*Case 2.* J. S., a white male, aged 54, was admitted 120 hours after the onset of excruciating colicky abdominal pains, nausea, vomiting followed by stiffness of the neck and jaws. Entrance examination revealed meningismus, trismus and abdominal distention with tinkling peristalsis. A clinical diagnosis of perforated gangrenous obstruction of the small bowel from old appendectomy adhesions and tetanus was made. The patient was considered to be moribund. However, after 18 hours of decompression, intravenous plasma and electrolytes, plus 160,000 units of tetanus antitoxin, the patient's condition was slightly improved. Exploratory laparotomy was carried out. At surgery a perforated gangrenous loop of ileum due to adhesive bands was found in the cul-de-sac. The non-viable bowel was resected and a double-barrel ileostomy done. Postoperative tetanic convulsions were noted. The patient suddenly expired four hours after operation.

*Case 3.* H. W., a colored male, aged 70, suffered from bilateral inguinal hernia for 20 years. He entered the hospital three days after incarceration occurred on the right side. At surgery the right inguinal mass contained an appendiceal abscess, gangrenous ileum and cecum. Resection of ileum and ileocolostomy were performed. On the fourth postoperative day pneumonia and generalized peritonitis developed which did not respond to antibiotics.

*Case 4.* E. S., a white male, aged 60, underwent abdominoperineal resection for adenocarcinoma of the rectum. Two weeks later the patient developed signs of intestinal obstruction. A Cantor tube was passed without relief. Laparotomy revealed an obstructed loop of jejunum which had become adherent to the colostomy limb. The Cantor tube had perforated the adherent bowel. Postoperatively, a fecal fistula formed which led to a severe wound infection. The abdominal wound sloughed resulting in hemorrhage. Finally the patient received 250 cc. of incompatible blood. He died 40 days after exploration and closure of the perforation.

*Case 5.* S. S., a white male, aged 40, entered the hospital 18 hours after the onset of cramping abdominal pain. A bowel resection for obstruction had been performed three years previously. Preoperatively the patient was in reasonably good condition (blood pressure 156/90, pulse rate 80). Dehydration was corrected by infusion of 2 liters of 5% glucose in normal saline. At laparotomy 81 inches of gangrenous ileum caught by an adhesive band were found. During surgery the patient developed irreversible shock which did not respond to 1,500 cc. of plasma and 2,500 cc. of whole blood. No resection was carried out due to his perilous condition. The patient died two hours after return to the ward.

*Case 6.* W. J., a white male, aged 50, was admitted to the Medical Service with hypertensive cardiovascular disease. He developed left lower quadrant pain and X-ray findings of intestinal

obstruction 48 hours later. Since mechanical obstruction with chemical peritonitis could not be ruled out, exploration was elected. During ether-oxygen anesthesia induction cardiac arrest occurred. The patient did not respond to transthoracic cardiac massage. Autopsy disclosed infarction of the terminal six feet of the ileum secondary to mesenteric artery thrombosis as well as myocardial infarction.

*Case 7.* J. F., a white male, aged 45, was admitted in a semi-comatose state 216 hours after the onset of cramping abdominal pain and profuse vomiting. The patient had undergone lysis of adhesions two years previously. After an intravenous infusion of 1,000 cc. of 5% glucose in normal saline, exploratory laparotomy was carried out. A strong adhesive band, producing complete obstruction of the terminal ileum was cut. There was no evidence of gangrene. On the first postoperative day severe bilateral pneumonia was discovered which did not respond to antibiotics. In spite of 1,500 cc. of blood on the operating table, 2,000 cc. of 5% glucose in normal saline, 1,000 cc. Protolysate and 500 cc. of blood postoperatively the patient's blood chemistry 12 hours before death revealed a nonprotein nitrogen of 111 mgm.%, a carbon dioxide combining power of 77 vols.%, and blood chlorides of 300 mgm.%. He expired 24 hours postoperatively with a terminal temperature of 108°.

### Method of Management

Patients were seen by members of the surgical staff immediately after arrival on the ward. A careful clinical evaluation, blood count, uninalysis, X-rays and blood cross matching were done.

Obviously, early diagnosis is important. In addition to the history and physical examination, upright X-rays have been found an invaluable aid in the early detection of small bowel obstruction. Hunt<sup>12</sup> has differentiated roentgenographically between simple and strangulation obstruction. If no appreciable vascular impairment is present the dilated loops are arranged in stepladder formation transverse to the long axis of the body and the valvulae conniventes are seen clearly. However, when strangulation is present, the distended loops assume no definite pattern, are darker in color and the valvulae conniventes are obliterated. See Figures 1 and 2.

An estimation of the degree of dehydration is made and replacement therapy started without delay. If vomiting has been severe, 5 per cent glucose in normal saline

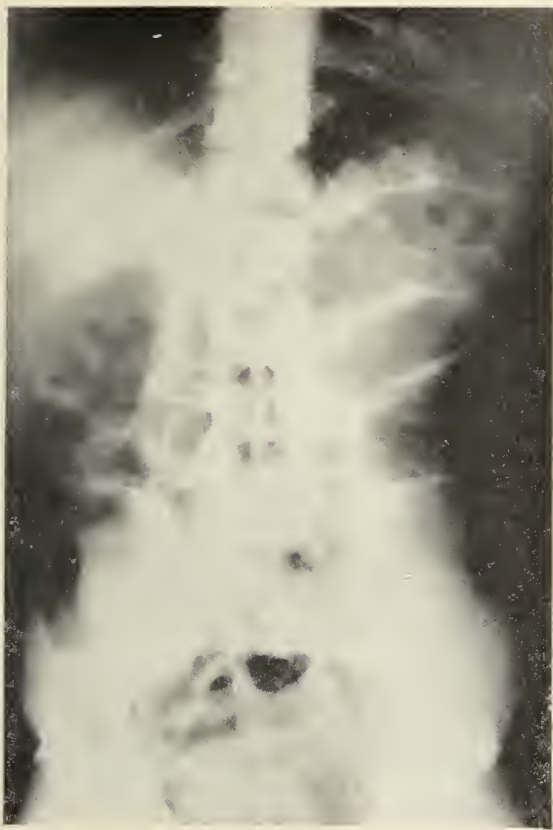


FIGURE 1 Typical X-ray findings in acute simple small bowel obstruction.

is given. Generous quantities of whole blood are administered preoperatively if strangulation is suspected or shock is present.

Tube decompression is begun as early as possible. We have found it more practical to pass a Levin tube if the patient arrives during the evening and start a Miller-Abbott or Cantor tube only if the admission is earlier in the day. From past experience we have accepted the fact that a Miller-Abbott tube simply does not get down during the night hours and a large Levin tube functions much more efficiently than a Miller-Abbott tube coiled up in the stomach; the Levin tube will decompress the upper gastrointestinal tract quite satisfactorily.

After the diagnosis of intestinal obstruction has been verified, the primary question is whether or not strangulation is imminent and, secondary to this, whether to employ conservative therapy or judicious surgery as definitive treatment. The latter term is used because we do not believe that every

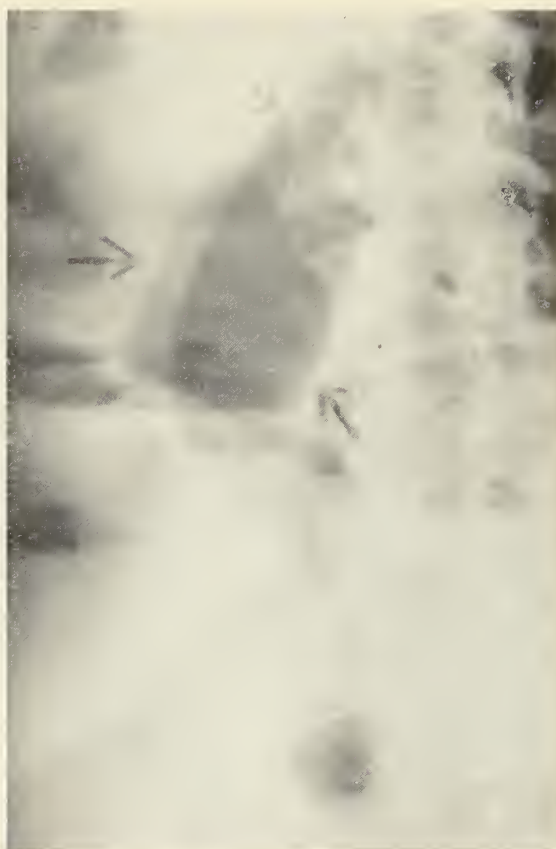


FIGURE 2. Portion of X-ray demonstrating findings seen in strangulated obstruction of the small bowel. Note dark loop with absent valvulae conniventes which is indicated by arrows.

patient need undergo immediate operation. If strangulated obstruction appears likely from the clinical course and X-ray examination, operative intervention is imperative, allowing as little time as possible for fluid and electrolyte correction and obtaining blood for supporting the circulation. Further hours must not be wasted hoping that a balloon tipped tube will obviate surgery. We believe that one of the reasons for the low mortality in this small series is that, reassured by chemotherapy, available blood, electrolytes and good anesthesia, we have not hesitated to operate early when strangulation is suspected. Important signs of strangulation are: progressive rise in pulse rate and temperature, diminution in peristalsis, the appearance of free fluid, spasm and tenderness, and rebound tenderness. Additional confirmatory data include mounting leukocytosis and X-ray findings as already described.



If the warning signs of strangulation are absent or very slight and diminishing, we may be able to "tide a patient over" the acute phase by close observation, supportive therapy and decompression. His course is followed with repeated abdominal examinations, pulse and temperature recordings, differential white blood counts and abdominal X-rays. When the patient is responding to conservative treatment and the long decompression tube is progressing downward he is followed with the serial X-rays until the tip ceases to advance. A small amount of thin barium is then instilled under fluoroscopy and the suspected area visualized. If obstruction is demonstrated by local dilatation ending in constriction or by painful peristalsis at this point, surgery is indicated. The information gained from this procedure gives a preoperative index to the location and nature of the lesion.

In short, our experience with the Miller-Abbott tube leads us to agree with Cantor<sup>12</sup> that these long tubes should never be used to the exclusion of surgery. We find them of greatest value in "sounding" the bowel to locate and to estimate the degree of obstruction. On occasion the obstruction will subside spontaneously and surgery will not be necessary. This is especially apt to occur in obstructions during the early weeks following laparotomy and perhaps due to so-called "plastic adhesions." Such patients, however, should be followed carefully for repetition of obstruction.

Penicillin combined with streptomycin and/or aureomycin is used freely both preoperatively and postoperatively. If perforation of bowel has occurred, prophylactic gas gangrene-tetanus antitoxin is given in addition.

Spinal anesthesia is utilized most frequently because it affords excellent relaxation. No serious difficulties with hypotension were encountered. Poor risk debilitated patients and those with cardiac disease are given general intratracheal anesthesia of ether and oxygen in high concentration.

Surgical technique does not vary to any great extent from that used by other surgeons and in other clinics. However, we

believe that the practice of decompression at the table of distended bowel deserves wider application.

When large loops of distended bowel are encountered, decompression affords a much safer exploration and lessens the possibility of traumatizing devitalized tissue. For decompression, we utilize a four-inch Frazier ventricular needle, a small suction tip or trocar attached directly to the suction tubing. The puncturing instrument is inserted through a fine cotton purse-string suture into the distended loop on its antimesenteric border. After the bowel contents have been evacuated the instrument is withdrawn and the purse-string tightened. An inverting Lembert suture is placed over the puncture site. This procedure may be carried out safely several times in the same case. See Figure 3.

As a further safeguard, one to two grams of streptomycin and one million units of penicillin, dissolved in 30 cc. of normal saline, are instilled into the peritoneal cavity during closure of the incision.

### Summary and Conclusions

1. Review of recent mortality statistics of small bowel obstruction indicates a noticeable decline since the introduction of antibiotics, blood and expert anesthesia.

2. It is to be emphasized that these antibiotics and supportive agents are not alone valuable *per se* but also because they permit timely surgery before obstructed loops become gangrenous. In the past, surgeons were tempted to procrastinate because of the high mortality rate following operations unprotected by these adjuncts as they were then.

3. Eighty cases of acute small bowel obstruction collected from the Louisville Veterans Administration Hospital are reviewed. An operative mortality of 9.1 per cent and hospital mortality of 8.8 per cent were found. The mortality in resected cases was 21.5 per cent. A synopsis of the fatalities is given.

4. The balloon tipped tube together with thin barium injection has proved fully as valuable in our hands in "sounding" cases

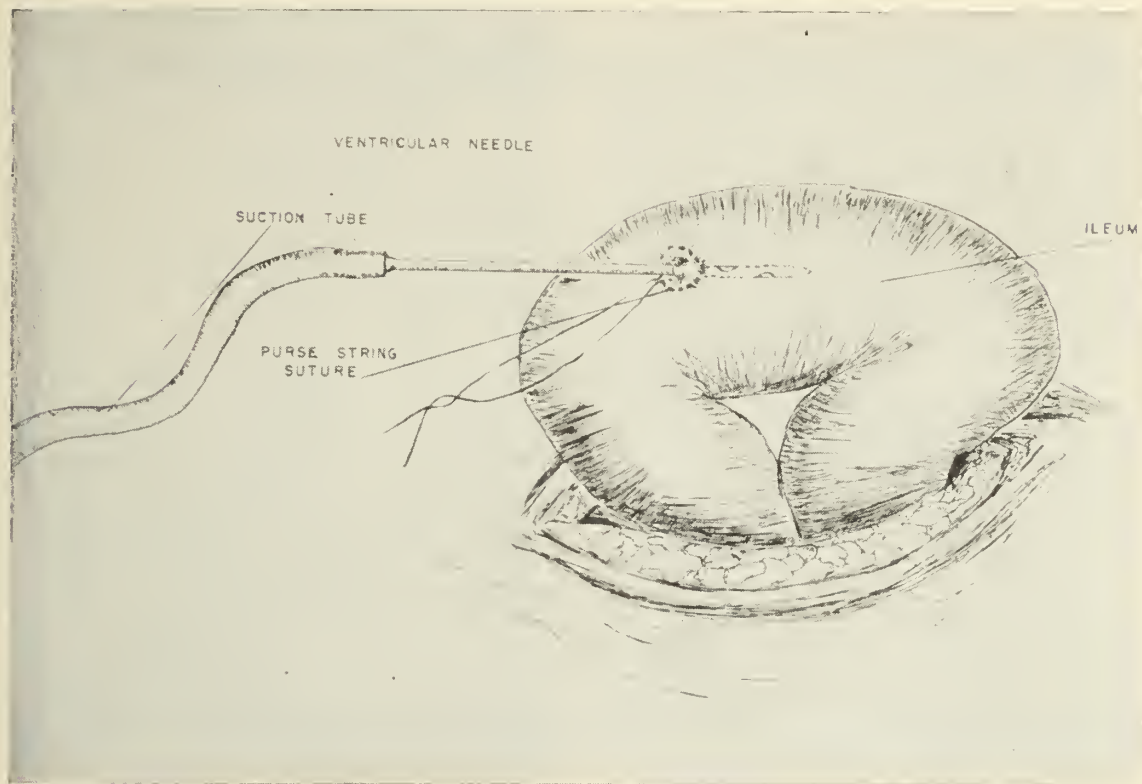


FIGURE 3. Use of the ventricular needle to decompress distended loops of bowel.

of subsiding or suspected mechanical obstruction to ascertain the location and degree of obstruction, as it has in decompression of the acute critical obstruction.

5. A point in operative technique that has proved safe and valuable is needle or trocar decompression of distended loops of bowel.

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### Discussion

DR. MALCOLM TIPTON (Union City): Mr. Chairman and members of the Medical and Surgical Profession:

Dr. Garner's analysis of these 80 cases of acute small bowel obstruction has been concise, for which an audience of doctors is appreciative. Most of us are more or less familiar with the information given, but we cannot be reminded too often as to the proper and best way to handle this type of case.



You noted that when the patient was admitted to the hospital, teamwork got into action. All of this is, as it should be in the hospital, but let us pause here and remind ourselves that the most important member of this team, beside the patient, is the general practitioner. He usually sees the patient first and thus assumes a great responsibility because of the time element involved. If the patient has been sensible and calls the doctor as soon as he becomes ill, the doctor has to be able to recognize the fact that here is possibly a surgical problem, which should be where its progress (as brought out in Dr. Garner's paper) can be observed intelligently. If the case is seen late, when the condition is obviously serious, all involved are lucky if a capably staffed hospital is only a few miles distant. The general practitioner, who may be on this hospital staff, should familiarize himself with all the aspects of intestinal obstruction so that he may cope with this responsibility and not put off getting the patient into the hospital. I might digress here and say that with our many new hospitals coming to life over our state, and with our medical schools and hospitals turning out men with ability, it will be of interest to check the mortality rate of small bowel obstruction ten years from now. I predict it will be lower.

If there is obvious obstruction and the patient is several hours from a hospital, it will certainly be helpful to get a Levin's tube into the stomach and to start glucose and saline intravenously. This may be a little troublesome but is worth while.

Since Dr. Garner brings us up to date so well, there is very little left to comment on. However, two points might be considered. Whenever possible a routine non-protein nitrogen of the blood should be done which is especially useful as to prognosis. If it continues to rise despite treatment the patient will die.

The technique of deflating the bowel is a most useful aid in the mechanics of surgery. A report in the *Annals of Surgery*, November, 1949, of experiments at the University of Pennsylvania upon cause of death in strangulation obstruction of the bowel, keeps the toxic theory alive. Thus, we may rightfully believe that the removal of this black substance, often in large amounts, takes away toxic material from a very sick patient and thereby helps him to respond better to the blood, fluids and chlorides that have already been given.

The good "ole" days, as far as medicine, surgery, and intestinal obstruction are concerned is *today*, and we have reason to believe that if the billboard signs are correct, we will see—"a brighter tomorrow."

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**Obesity in Diabetes: A Study of Therapy with Anorexigenic Drugs. Osserman, K. E., Dolger, H., Ann. Int. Med., 34:72, 1951.**

Dietary management is secondary to insulin therapy in the control of the obese diabetic. These patients may be considered "decompensated" and with decreased caloric intake and weight reduction may be restored to "compensation." There are two forms of therapy available to the nondiabetic patient: (1) psychotherapy, and (2) the use of anorexigenic drugs. The latter have been considered contraindicated in treatment of the diabetic individual.

Fifty-five obese diabetics were followed over a period of 18 to 30 months, with the majority of this group ranging from 45 to 65 years of age. Of this group, 31 were being treated with insulin. Studies on this group included routine examinations every two weeks regarding weight, blood pressure, urine, fasting blood sugar and periodic electrocardiograms and glucose tolerance tests.

One thousand calorie diets were given over several weeks without appreciable weight reduction. Benzedrine was instituted in an average dose of 10 mg. three times daily. In view of three instances of hypertension, Dexedrine was substituted in the same dosage. The same anorexigenic effects were obtained with either isomer. At the end of the study, drug therapy was discontinued and each patient followed for another year.

Thirty-six of the 55 obese diabetics showed a weight loss varying from 11 to 77 pounds. The beneficial effects of weight loss on carbohydrate tolerance was most striking. In 31 patients receiving insulin therapy, 84% were able to discontinue or reduce insulin dosage (15 patients were able to dispense with insulin entirely). Nineteen patients could not adhere to the diet despite use of the drug and therefore failed to lose weight.

One year after anorexigenic drug therapy had been withdrawn, 19% exhibited further, but minor, weight loss; 41% regained less than ten pounds, whereas 40% gained weight up to 26 pounds. One year after withdrawal of the drug, 50% of the 15 patients able to dispense with insulin had to resume the administration.

No serious complications were noted during the study. The usual side effects of the drugs were occasionally encountered. There were two cases of generalized dermatitis.

Caloric restriction should remain the basis of the treatment of obesity in diabetes mellitus. Anorexigenic drugs played no direct role in the improvement of the carbohydrate tolerance. These drugs helped 65% of the group to display better cooperation and permitted striking reduction in insulin therapy. After withdrawal of the drug, only one-third of the patients continued to maintain their weight at lower levels.

(Abstracted for the Tennessee Diabetes Association by Cleo W. Stevenson, M.D., Memphis.)

## STAFF CONFERENCE

### UNIVERSITY OF TENNESSEE, COLLEGE OF MEDICINE, PSYCHIATRIC STAFF CONFERENCE\*

**STUDENT:** This is a 58-year-old, single, white male, who has had attacks which are epileptic in nature.

His first attack occurred after his betrothed broke the engagement and married another. He never married because of the attacks. His admission to this hospital was voluntary, but the patient, at a later time, believed that the family placed him here to get rid of him. His mother and father are deceased, but he has brothers and sisters he sees at frequent intervals and is on good terms with them. This conflicts with the aforementioned belief that they want to get him out of the way. The patient complains of falling out spells, indigestion, and fear of impending death. He did not know what would cause his death. He believes his trouble began following an appendectomy and several prostatic operations. He says they took too much from him—more than they should, which has interfered with the transmission of nerves from his brain to his prostate. This has caused him to slow down in mental activity and interfered with his memory. This, he believes strongly. His fear of death is not apparently related to his epileptic-like seizures.

He has been, more or less, a dependent person all his life. Most of the family has looked after him and he has always lived with his mother and father, up to the time of their death.

His epileptic seizures are fairly well controlled with dilantin and phenobarbital.

With the death of his mother and father he lost his support and lost his home life. In the will left by the mother and father they set aside a room in the house and the house was never to be sold, but was to be rented with the stipulation that the people who rented this home would always take care of the patient. He lived under this condition with the renters and he began to realize that he was getting further away from the rest of the family, who had somebody paid to look after him. It wasn't long until he began to call people up at night with the vague complaints that he was dying. He had all sorts of symptoms—respiratory, gastrointestinal urinary, etc., and he became quite a nuisance calling doctors at any time of night and having the brothers rush over to see him.

The particular incident leading to admission to this hospital was the following. He tried calling everybody, doctors, brothers and sisters, and no one would come, and so he called the fire department and said he was on his deathbed. By the

time the fire department got there he had forgotten what was wrong with him. They took him to the John Gaston Hospital and had him checked over by the interns and they found nothing physically wrong with him. He was then admitted to this hospital.

He has had frequent admittance to several hospitals for G. U. procedures and each time they were unable to find anything structurally wrong with him, although he did have prostatic infection. On one of the times that he was in a hospital he overheard some physicians talking about a tumor which he immediately thought was cancer which was a source of his worry, also.

The physical and laboratory data did not seem significant in light of the situation. Since his admission here he has gradually improved. Earlier he remained in bed and complained of his condition. Later he lost his fear of impending death but suffered a setback after a urological examination. This, he has gotten over, as well as his anxiety attacks, and when I first saw him he appeared to be quite happy. His electroencephalogram revealed a pattern similar to those in persons with grandmal epilepsy. Since he has been hospitalized here I think he has had two or three pseudo (?) attacks. They didn't seem to be true attacks but they seemed to be "attention getting" devices. Those who observed the attacks said they were over as quickly as they had begun. They were like what one might see in a child who lies down and screams and kicks his feet to get some attention. Just lately, in a visit with him, for the first time I noticed any desire for attention by me. I visited him and told him I had another patient on the ward whom I wanted to see. I was talking to him at the time and I left to visit my new patient and he was being perfectly quiet. When I returned from seeing my other patient he was lying back in his chair moaning and saying, "Oh, I had a terrible night last night!" I told him he was just kidding me and he said: "Well, I just felt so sleepy. I can't keep my eyes open." He had been out the night before until about 11:30 and he wasn't used to staying up that late, he said, and he accepted that as an explanation for his feeling bad. I believe this was an attempt to get sympathy from me because I was giving him a little less attention than I had previously, since I had been working with the other patients and hadn't seen him too often.

**DR. CYRIL J. RUILMANN:** I think it should be noted that we first saw this man in 1948, almost three years ago, at which time he had a history of uncontrolled seizures over a period of a good many years. The amount of dilantin was adjusted a little bit. We experimented with mesantoin to which he proved sensitive. He is one of those who develop a skin rash while taking mesantoin, so we had to switch to dilantin which we did not want to do because there

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had been at that time a little trouble with hyperplasia of the gums, but since then he has been completely seizure-free and recheck EEG indicated a good level of control of the cerebral dysrhythmia. I think that we have here a very classical situation in dependency. Can you fill in some details about the nature of some of his operations?

STUDENT: Well, it seems that my information on these operations is vague, but he had his first operation when his father was alive and this was done by a family physician. This was an appendectomy, which he later referred to as having caused the digestive complaints that he had later on when he developed most of his neurotic complaints. Then later he had some urinary symptoms. Whether they were anxiety attacks or whether he had true urinary retention I do not know—he was seen by a urologist and a small nodule on one of the lobes of the prostate was found. Since he did have these complaints he was operated upon. It didn't seem to do a whole lot of good since he is over here but he had a little tumor there and his belief that it was cancerous added to his anxiety reaction. Somewhere along the line he said he read about, and doctors had told him about the nerve link between the prostate and the central nervous system. The operation was represented to him by the rule that the prostate removes part of the mechanism to which his memory functions and thus slowed down his mental processes. He does carry upon his person a little piece of paper on which he has all the names of the patients in this hospital in one column and all the nurses in another and all the doctors listed in another and he uses this as a method to recall names. He doesn't seem to have much difficulty in remembering past experiences. I happened to see the ball game that he did about a week ago and he remembers it much more clearly—things that happened during the ball game—than I do, and I don't believe he has any actual mental retardation.

DR. RUILMANN: Well, there were in fact two actual surgical procedures on the G.U. tract. The first, I am told by the urologist, followed a diagnostic cystography which, of course, happened in response to the patient's complaining. At that time a

small pedunculated tumor in the bladder wall was discovered. It was held to be inconsequential at the time but since it was easy to remove this was done. That was followed by a physical check-up. It was at that time that the discussion was being held about pictures taken and a word such as cancer or malignancy was used and the patient overheard it. At that particular split second, without saying anything to anybody, he apparently slipped out of the hospital and disappeared and stayed out of sight for the rest of that day, apparently in great fear. Following that there were rapidly alternating difficulties of incontinence on one day, pain the next day, which occasioned several cystographies with no further operations until after he came here. The urologist felt that from his point of view there was no particular reason for the symptoms which the patient was experiencing. They did note that there was a very small nodule on the prostate which again they felt was trivial so far as his presenting symptoms were concerned. However, the urologist felt that he wanted to do everything possible to relieve the patient's fears and while he was hospitalized here recognizing the patient's fears of further surgery he asked that this be done while the patient was more or less under our protection. After the second operation there was a marked upswing in complaints of weakness, memory trouble, stomach trouble, constipation, headaches, shaking, heart trouble, etc.

We have here a man who made a precarious adjustment over a period of years, who at this point in recent months has undergone a sort of disruption. Where would you place the beginning of the present trouble?

STUDENT: I believe this man began to have his troubles, not particularly beginning with operations but with just being left alone, more or less "a babe in the woods." He appears to me to be an overgrown child, who never did grow up emotionally, always depended on his mother and father and when they left him he was without any support.

DR. RUILMANN: I think perhaps that is true. I think the first definite event that brought about trouble was the death of both

parents within a relatively short period of time. The arrangement in the will is correct. The people who rented the house were definitely asked to keep an eye on the patient and to steer him intelligently. I think the second step came pretty much from within and was probably his own recognition, maybe not in so many words, but the rather all pervasive feeling that if the parents both died what was to keep his older brothers, on whom he depended very heavily, from doing the same thing, which of course left him in really a difficult predicament.

It is virtually apparent after the first operation, that is the first G.U. surgery, that there was a rapid deterioration in this man's control. The first thing that came into the picture apparently related to death and fear of developing a malignant disease or some kind of death. This brought about feelings of anxiety along with the expected increase in heart rate, palpitation, feeling of uneasiness that such people are prone to experience. Then came a long period of visits to cardiologists, the various internists in town and there was much time and money spent but with little or no results so far as his complaints were concerned. The things that the family found most difficult to handle were the early morning telephone calls. At first the family would go over and try to reassure him and they were told subsequently by several of the physicians that nothing bad was going to happen to the patient and not to worry about it too much but instead to reassure him. They did this but not wanting to leave the comfort of their own bed at three o'clock in the morning they adopted the policy of reassuring him verbally over the telephone and not coming over. The calls became more numerous and various physicians began to complain about the calls at 4 o'clock in the morning on what they knew to be a "wild goose chase."

The night of the crisis came when he had called each of his two brothers and got the same response from each one who would not call a physician because he was not going to die and told him to go back to bed. He then roused the family who lived in the home with him and got the same reply

that they were not worried about his health, that they were given to understand that he was in good shape and nothing was going to happen to him. He then went back and pondered the business of calling one or another of the physicians but he had been told by his brothers not to do so because they would not come as they had been told not to do so. It was then that he placed calls to the fire department and to the police department and said that he was dying to please hurry. Neither the fire department nor the police department had any way of knowing and responded with lots of equipment, moving into the street. The patient was calmly seated at the window watching the proceedings, having forgotten all about his heart attack. You can very readily see what this did to the otherwise busy police and fire departments when they saw him seated at the window watching the activity. They didn't see the humor of the situation at all but bundled him into one of the ambulances and took him to the Gaston Hospital. When the man on duty had examined the patient and pronounced him in sound health they complained, of course, to his brothers which was a most embarrassing thing because one of the brothers had for years been a top official in the fire department and knew many members of the department. There is a suggestion of a direct relationship between the brother's job and perhaps knowing they were there to call when in trouble. That turned out to be the last straw and the family then sought his admission here, I think not especially with the idea of changing the patient very much but in getting guidance and future placement and getting reassurance of having tried their very best to do what was right for the brother. Any questions?

2nd STUDENT: I was confused on the age at which he started having these epileptic seizures.

1st STUDENT: He was about 28 years old at the time.

2nd STUDENT: Do you think that his parents' way of taking care of him during and at the time of their death, which showed up in the way they worded their will, had any background in his present picture, whatsoever? It seems to me that the psychic



approach to an epileptic is very important also—teaching him to adjust to the life situations.

DR. RUILMANN: Yes, I think that is not only very pertinent but that whole general area constitutes the reason for taking up this particular case. The situation is quite interesting, revolving about parents who were better than average in success; two brothers, both of whom are well above average in their own life achievements; a sister who has married quite well, and then the patient. We do not know the exact status prior to the onset of the seizures. I suspect that he would have missed by a wide margin of living up to their standards if he had not had seizures. In other words, I think that the ground work was possibly present independent of the seizures which came into the picture later. There is no doubt of the existence of actual epilepsy and it had been uncontrolled for a long time. There is, in fact, a very negligible amount of mental deterioration. We assume that this is due to the controlled seizures. It is, however, so minimal that he would not be aware of it and his complaints about his ability to remember people, etc., do not relate to the very minimal amount of deterioration that exists here. It might quite possibly be related to efforts at psychometric measuring. One of the important things here is the consideration of what else could one do for people with epileptic-like seizures besides controlling the seizures. We have felt always, of course, that controlling the seizures alone was perhaps the easiest part and unless the individual were going to be a useful citizen and was going to get something out of his life and make it worth living there would be very little point in bothering to control the seizures anyway. I am trying to stress the fact that there is no need for these people to be put on the sidelines and to behave as though they were disabled when in fact they are not, from a physical or mental point of view.

The parents in this case began by adopting a very protective attitude. They took him all over the country, literally, in an effort to achieve seizure control. At that time the anti-convulsant drugs we now have were not available. Perhaps in some ways the

things they did were unavoidable. He was seen by many of the country's noted neurologists at the beginning of his seizures and when the family found that he was going to continue to have seizures they really did look on him as being a disabled person. The brothers and sisters felt very much as the parents did about him, the two brothers being relatively successful, having numerous friends and it was through them that he was kept employed. The patient feels as though he is a vital cog in the personnel as far as the business is concerned in spite of the fact that he has more or less suffered from working there out of friendship and gratitude for his brothers. The two brothers, not only being older, but being considerably more capable, drifted away from him, I suppose, through the years. Then, too, there is a rather set attitude which makes it very clear that they do not look on him as an adult or a person of equal standing at all. The three of them have often come into the office together and you immediately sense that here are two big brothers and a very small brother. They speak about him in his presence as though he is a child. They speak to him as though he is a child and in general leave no doubt as to how they feel about him. We think the definite result of that particular way of handling him, while it was based on an earnest desire to be helpful to the patient, gradually seeped into the patient's attitudes and way of feeling and I think while he never mentioned it, he himself is quite convinced that he is unable to make out on his own steam. He looks to them for all things. He, like many children, is very prone to play one against the other. Many examples of that have occurred since he has been here which are in line with the experience this gentleman had on the ward yesterday. We had always taken great pains to urge the patient to go out to the ball games, to do this, to do that with his brothers. We did not know it for several weeks but while we would spend half the day urging him to get out and do something, he was reporting to his brothers that he had been forbidden by us to go out. Of course, that was just to one of them. The other brother having talked to me in the meantime con-

fronted him one day with, "Why haven't you gone to the ball game? They tell me that they want you to go." The patient developed at that time what was a belly ache. Another time under similar circumstances, rather than confront the brother with certain rather unpleasant things that had been going on, there was a seizure which I think was certainly a feigned imitation. He has a need to drag in these other things to continue to insure his state of dependency on them.

DR. THERON S. HILL: At this point we ought to hear from other people.

DR. PARKER: There are questions that arise which we haven't been able to answer and probably will not this morning. One is to the genesis of this terrific over-dependency that we see here in this case. Certainly, this existed before his engagement was broken up. There might be the speculation that because of the fact that his parents were aware that he was incapable of taking responsibility was the reason his engagement fell through. I think we should explore more for understanding of the present picture as to how the patient got to be the way he is today. That, we don't know. Certainly, the siblings, as Dr. Ruilmann has pointed out, fell into the same pattern the parents had of perpetuating the dependent needs of the patient, reinforcing to the point that they even began to find it a little more than they could bear. I would like to hear some views from someone as to what they think did happen in the patient's thinking and feeling on the night he started calling the police department and fire department. Dr. Ruilmann has given us a hint. Also, there is another question that should be answered and that is whether his intense fear of death, particularly concerning preoccupation with his G.U. complaints might not tie in with early psychosexual fears which a man develops in the course of his growing up.

DR. HILL: An individual who has intermittent convulsive seizures has a serious threat to himself. We say that focusing attention on a threat is as severe as that of death which could be brought about by the existence of convulsive seizures in an individual.

DR. PARKER: Well, I have seen cases where I thought that was true. Of course, in this case I do not know but I suspect from what Dr. Ruilmann told us that this man had many problems before any clinical manifestations of seizures. Some of these difficulties might have been due to cerebral dysrhythmia beforehand.

DR. HILL: This fear of death does occur in some individuals who have convulsive seizures. It is not then an important part of psychotherapy, which is an integral part of comprehensive medicine, that the physician be aware of such a possibility and be prepared to deal with this in the early phases of epilepsy?

DR. PARKER: I certainly agree with that and I think the same thing would be said too about the possibilities of malignancy or threatening invalidizing illness.

DR. HILL: It has been indicated in the history that the first of the convulsive seizures followed the breaking of an engagement. Do you feel that psychogenic factors played an important role in the initiation of this convulsive disorder?

DR. PARKER: Precipitating the seizures? I think it is very possible. I have definitely seen that happen where the same repetitive emotional situation precipitated convulsions. I don't mean it can cause the underlying cerebral dysrhythmia but emotional stress can certainly precipitate specific convulsions.

DR. HILL: Do you think it is possible for an individual who has actual convulsive seizures, as this patient has had, to have in addition seizures which are inaccurately patterned after the true convulsive seizures but are psychogenically brought on and that are initiated to serve the purpose of gaining attention and consideration?

DR. PARKER: I think we see that not infrequently not only in epilepsy but in other chronic medical disorders where the illness in itself comes to meet certain emotional needs of the patient which have not been met otherwise. Then the patient may either be in full awareness, or not be aware of what he is doing and use what have been real physical symptoms to continue to meet his emotional needs.

DR. HILL: I would like to hear from Mr.



von Lackum in reference to deterioration in epilepsy, more specifically appraisal of the degree of deterioration in the patient.

MR. WILLIAM VON LACKUM: An epileptic who has been having severe grand-mal type seizures over a period of time we know suffers some loss of cortical tissue and with these results there is a loss of intellectual function. Loss of intellectual function because of its nature is fairly easy to determine. Loss of function is first noticed in a failure of immediate memory. They can remember, for instance, what happened two years ago and yet have difficulty in remembering what happened on the day they are being interviewed. This shows up psychologically in testing by a discrepancy of scores between such items as general information, such things as the president of the United States, who invented the telephone, etc., and memory span, the ability to remember a series of numbers. That is one of the first places it shows up. Interestingly enough, it shows up in certain performance tests too, the reason for which we are not sure—block design, that is, putting blocks together to match the design presented. That function is impaired. Those things are the type of thing which we see. Later on and also early there is a slowing down of reaction time in the individual for any sort of problem you want to present. He can solve it all right but it takes him longer. Then these changes, of course, are followed by the usual things seen in the individual having brain injury, stereotyped of mental function. We can determine this fairly well by tests which we have available. There are a number of them and the more seizures the individual has the more noticeable is this deterioration.

DR. HILL: In the intervening four years could any degree of deterioration have increased?

MR. VON LACKUM: It might have, yes.

DR. RUILMANN: Except that he has been completely seizure free.

MR. VON LACKUM: Well, being seizure free would make one wonder, unless these seizures were due in the first place to some progressive degenerative brain process.

DR. PARKER: Would you not agree, Dr. Ruilmann, that deterioration in epileptics

is dependent upon damage caused by the repeated seizures.

DR. RUILMANN: Yes, I think we should make that clear, that controlled epileptics do not experience the deterioration which non-controlled epileptics do. We believe that it is directly related to the frequency and severity of the seizures.

DR. HILL: Is there any discussion from the group?

STUDENT: Since the seizures have continued after they have been controlled, could you not classify them as conversion hysteria?

DR. RUILMANN: I believe that the two things can happen—one being a forthright seizure as I think we saw here. I think that epileptics and other people do have convulsive-like episodes which are, in fact, a conversion hysteria. I think we have the genuine seizure, the hysterical conversion equivalent thereof and just plain imitated seizures voluntarily determined which would not be true of the hysterical conversion.

STUDENT: I would like to know if at the time the doctors and the brothers were being bothered by the early morning calls, there was any particular line they could have taken which would have prevented or at least slowed his rapid anxiety that culminated in calling of the fire department. What might they have done at that time other than just to say, "You will be all right."

DR. RUILMANN: Well, I expect at that point in his life it was a little late. I think they did their best and the line they mostly adopted was of reassurance, trying to aid him in his episodes of panic. They tried to reassure him but quite clearly reassuring him about not having heart disease was not going to meet his particular set of needs at all. Almost one might say it was beside the point when he wanted them there with him.

DR. HILL: You classify his emotional reaction at the present time as psychoneurotic in nature?

DR. RUILMANN: Yes, I think so. There is, of course, what sounds very much like a clear cut delusion but I think probably it is more a matter of unfamiliarity with the

human anatomy in his discussion of the nerve connection between the prostate and the brain. I think, while it sounds rather bizarre, it is mostly a matter of his rephrasing of such little medical knowledge as he has.

MR. VON LACKUM: Is it possible that on this night that he called the fire department, the realization which had come to him when he called the doctors and they all let him down,—the realization that he was alone with his problems might not have been sufficient to precipitate an emotional reaction which he could have mistaken as a heart attack. The terrific fright reaction coming on and the natural organic contribution of the heart to an emotional, strong emotional reaction of fear, which might have struck him. Anyone, when he is frightened, begins to hear his heart thump and is it possible he just mistook a fear reaction for a "heart attack," as neurotics frequently will do?

DR. RUILMANN: I think that is exactly what happened but that is what has been happening right along. All of the late night phone calls were on the basis of heart trouble and all, I think, were essentially of a panic state that he could not otherwise understand. As far as he could see in his conscious thinking, there was no particular thing to be frightened of, and as so many people do, they rather distort the sequence of things themselves. When questioning such persons closely, you are likely to find the first thing that happened was the feeling of fear followed by the rapid pounding of the heart, sweating of the palms, feelings of weakness, etc., yet as they come in and seem depressed and describe their symptoms they generally say that they became afraid because of the heart's pounding which was not the actual sequence at all. He could see no reason for being afraid; in his conscious thinking he was pretty much as he had always been.

MR. VON LACKUM: I raised that question particularly for the benefit of the students, for frequently people in dealing with neurotics feel that they just make these things up out of whole cloth, which is not the case.

DR. RUILMANN: Yes, I am sure that

has happened. In general, I think it is true the symptoms of the psychoneurotic are never imaginary. There is always some basis. Here, we find for example, there is extreme preoccupation with bodily comforts rephrased in his verbal production in terms of symptoms. He speaks frequently for example of his trouble with constipation and, if you listen to him, you will see that as far as he is concerned it is a very serious problem. Yet if he is allowed to talk about it, there is not too much in the way of constipation, especially since the miracle drug, mineral oil, is available. But he is sick. If he can get a listener, he will describe in minute detail the color, the texture and all of the details concerned with the stool passed that day—how long it took, how much effort it took, the color, the consistency, every little detail is gone over, and over, and over. The same thing is true of complaints of weakness. If you sit down at any given moment and try to ascertain your own strength, you find yourself without much of a measure. It is hard to say how strong I am right now. Maybe I am as strong as I should be, maybe I am not, but the very preoccupation with such a thing often leads to careful weighing of each somatic sensation coming into conscious perception. When he reaches the conclusion that he is weak, it is not difficult for him to become quite convinced that he is weak. His preoccupation with urinary functions is another good example. If one spent hours a day thinking about how it feels to urinate, whether one will be able to initiate prompt urination the next time one goes to the bathroom and thoughts like that, it is easy to see how the least bit of sensation in the bladder area will receive a terrific amount of attention. I think that it is true right on down the line.

DR. HILL: Diagnosis is an important phase in any branch of medicine. In this patient we have epilepsy. There has been a tumor of the bladder. We have a psychoneurotic reaction. The discussion should have brought out that it is important to use appropriate interviewing techniques in dealing with the emotional components of illness. Thus we may understand why these reactions have occurred, and to real-



ize how the fostering of dependency and the building up of over-protection can prevent an individual from reaching a state of maturation in the face of physical illness to which others make a satisfactory adaptation. In retrospect, treatment should have been preventive with the education of both parents and the patient as a child, or let us say a youth, so that dependency and over-protection would not have had the disastrous results they have had.

Time remains to make brief comment upon what would be at this stage of the patient's illness the most effective treatment.

DR. RUILMANN: I would like to state first that we speak of this man's inability to compete in life. While it is true that he was not as capable as his siblings, it is nevertheless true that he had ample capabilities falling well within the average range so far as intellectual potential is concerned. The problem is not this. The problem is not in forthright ability but only in the relative comparison between the siblings and the attitude that began to build up around this whole problem in the home. At the time his seizures started of course, many of the newer techniques for seizure control were not available. The seizures could almost certainly have been controlled had they begun a few years ago. That, of course, was the time for some discussion with the patient, with the family pointing out the such few dangers and disabilities as do attach to epilepsy but stress perhaps more the other side of the picture, the really very slight amount of inconvenience this physical condition causes people. There are very few pursuits in the industrial and economic life that cannot be well carried out by people with seizures. They need amend their lives very little compared to the rest of us. They can live quite happy, useful lives. I think that if the rest of the family had any notion whatsoever about the far reaching effects of their sympathy in helping this patient, their own attitudes would have been followed by less protection at the outset and probably none of this would have happened at all—certainly, it need not have happened.

STUDENT: Is there anything you can do for this patient now?

DR. RUILMAN: At the present time we certainly face a difficult problem. This man has gone through approximately 30 years of a life we have just described through the course of this hour. The natural growth, maturing and development that should have taken place long years ago did not take place. I seriously question our ability to materially alter the situation at the present time. After all, this man is getting close to sixty and it is hard to change many habitual life patterns and attitudes. I am afraid that our role in this thing is in the first place to evaluate the over all picture, to reassure ourselves of the correctness in the details regarding his meager disturbances and his physical condition in other respects, and then to discuss with the family the ways and techniques of caring for this man for such future years as remain to him. I am afraid that those years will have to be spent in some kind of a protective arrangement. The brothers are getting along in years. They have their families and interests to look out for. They foresee very openly and quite consciously that they are going to die soon and I think that probably their best hope is some arrangement such as a home or some other safe harbor for this man. We can keep the seizures from occurring. That is not difficult. We can reassure him. The task of altering his attitude is a little bit too formidable to take up at this time of life.

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#### *Follow-Up Report*

See University of Tennessee School of Medicine Staff Conference (May, 1951)

Patient E. M. is now hospitalized at Oakville Sanatorium. Several sputum specimens have been cultured for acid fast organisms only two of which were positive. Very minimal increased density is still present in the upper lobe of the left lung. The patient has no respiratory symptoms and treatment has consisted of bed rest and good diet.

The patient was recently rehospitalized at John Gaston Hospital for follow up study. She remains relatively asymptomatic. The non-tender hepatomegaly per-

sists. Appetite is good and there is no significant weight change. Spleen is palpable and firm extending about 2 finger breadths below the left costal margin. Hemogram is normal except for a packed cell volume of 38%; a sedimentation rate with a maximal fall of 1.7 mm., 1.3 mm. when corrected for anemia.

Liver function studies revealed the following abnormalities: BSP 35% retention at 45 minutes (5 mg./Kg given), serum alkaline phosphatase of 17.5 units, cephalin flocculation 1 at 24 hours. Patient ex-

hibits slight intermittent fever. A punch biopsy of liver revealed normal liver tissue. Acid fast and fungus cultures of liver and bone marrow specimens secured in May, 1951, are negative.

The differential diagnosis is still thought to include Boeck's sarcoid, syphilitic cirrhosis, tuberculous cirrhosis or hepatitis and Laennec's cirrhosis. The chest lesion is regarded as being minimal pulmonary tuberculosis.

Another evaluation of the patient three months hence is contemplated.

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**A Consideration of Some of the Problems in Cardiovascular Surgery. Blalock, Alfred, J. Thoracic Surg., 21:543, 1951.**

The author, an outstanding contributor to and authority on the surgical treatment of diseases of the heart, has reviewed the accomplishments of the past in this field and discussed the various types of lesions which as yet are benefited very little or not at all by surgery. He divides cardiac disorders into three groups:

*Group I:* Disorders in which good or excellent results may be obtained by surgery:

(a) *Acquired Lesions:* Constrictive pericarditis, wounds of the heart, systemic arteriovenous fistula, arterial aneurysm, mitral stenosis.

(b) *Congenital Lesions:* Patent ductus arteriosus, coarctation of the aorta, pulmonary stenosis and atresia, pulmonary arteriovenous fistula, anomalies of aortic arch.

*Group II:* Disorders in which moderate improvement may be expected following operations: essential hypertension, transposition of the aorta and pulmonary artery, anomalies of venous return.

*Group III:* Disorders in which surgical therapy is of doubtful value or suitable methods of treatment have not been developed:

This group includes coronary arterial disease, aortic valvular stenosis, valvular insufficiency, auricular and ventricular septal defects, intracardiac tumors, and others.

In all, the author discusses, concisely, twenty-three types of cardiovascular abnormality. A description of the pathological lesions present in each of these and the important contributions in the surgical treatment of the disorders are clearly discussed. Many of the factors which stand in the way of the successful treatment of cardiac disorders thus far not amenable to surgical therapy are enumerated and the author points toward new research which may contribute to the solution of these problems. Among these is the problem of the creation of an artificial circulation to render the heart bloodless except for the coronary circulation and permit meticulous intracardiac surgery under direct vision. The considerable progress which has been made during the last few years in this particular field, and in others, is reviewed.

Operative methods are outlined briefly for the various disorders which are now amenable to treatment. Differences of opinion regarding the techniques which should be employed are discussed. The author expresses his own preferences regarding the site of operative incision, types of suture material, methods of suture of blood vessels and the most desirable time for operation as regards the age of patients with congenital abnormalities and the duration and severity of acquired lesions.

(Abstracted for the Middle Tennessee Heart Association by Rollin A. Daniel, Jr., M.D., Nashville.)



# The President's Page

## HORIZONS WIDEN FOR YOUR ASSOCIATION

*The guest columnist for this section of your Journal in the current issue is our Executive Secretary, Mr. V. O. Foster, who has a message of genuine interest to every member of the Association.—E. G. Kelly.*



DR. KELLY

Time was when the physician had only one responsibility—the faithful ministering to the ills of his patients. Time was when medicine had one major stated purpose — “the advancement of the art and science of medicine.” This consuming desire for improvement brought about the recent era of “scientific medicine”. Herein lies the secret of modern medical progress.

But medical progress has brought new and broader roles to the physician and his colleagues. Scientific excellence in medicine has resulted in a far greater demand for medical care. It has also increased the costs of medical care. It has unfavorably affected the distribution of medical care facilities and personnel. It has brought about the era of specialists. It has resulted in the concentration of medical care facilities in the metropolitan centers, and it has provided politicians a new round of ammunition in the battle of the ballot box.

These new aspects of medical care—social, economic and political—which the profession cannot ignore, have required a new alignment of the resources and energies of The Tennessee State Medical Association. These problems can't be met by the time-honored practice of holding scientific sessions and publishing papers in a Journal.

Efforts of the Association to solve these problems account for its vastly expanded activities. Each activity is aimed at a particular problem of medical care outside the purely scientific. Whereas the medical society has heretofore served the members, now it must also serve the public through worthwhile projects that augment the bed-

side treatment of the patient. We must develop a sort of “public conscience” and meet the economic and social needs of that patient which we call the “public.”

Nowadays, our Association must broaden its horizons and hammer away at such problems as doctor shortages in certain areas, inadequate hospital facilities, poor standards, better transportation and communication facilities, poor environmental sanitation and other problems that actually do deny some of our citizens the medical care they have a right to expect.

Economical problems in medical care grow continually significant. Modern medical care, while immensely superior to horse and buggy medicine, costs more today than ever before.

Solutions to these problems require increasing activity on the part of our State Association and its component societies. Solution to these problems means a sound program for the medical care of indigents, the spread of The Tennessee Plan of Prepaid Health Insurance, handling the fee gougers who reflect on the whole profession, avoiding over treatment and securing sound methods of financially assisting medical education without the loss of freedom.

Without the doctor's choosing, and to his dismay, medical care has become a political football. There are those who would exchange the present system of private medical care for an un-American system of government medicine, risking the destruction of the finest system of medical care yet devised.

The social, economic and political problems related to medical care cannot be shunned. They are inextricably woven into the pattern of modern medical practice. Their solution, in the public interest, will add additional laurels to a great profession which has long since acquired full scientific stature.

# THE JOURNAL

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SEPTEMBER, 1951

## EDITORIAL

### FLUORIDATION OF WATER SUPPLIES

The medical profession is being asked to join the dental profession\* in recommending the fluoridation of municipal water supplies. It is the hope that the provision of fluorides for large numbers of the population, at a very low cost, will be the most effective means of partially preventing dental caries. Therefore doctors should be informed sufficiently on the subject to answer their patient's inquiries on such a publicized subject.

The mottled enamel of dental fluorosis has long been known to occur in certain endemic areas. It is due to an excessive intake of fluorides during the period of calcification. In the endemic areas of some of the middle-western plains and south-western states several million people are subjected to fluorine concentrations of from 0.9 to 5.1 ppm.† The absence of recognized evidence of damage, other than the appear-

ance of mottled enamel, in residents of these areas can at least put our minds at rest concerning the safety of the addition of sodium fluoride to a water supply. The mottling of the enamel is not likely to occur if the fluorine concentration does not exceed 1.0 ppm.

The method by which fluorine may prevent caries is not known. One theory is that it lowers the solubility of the tooth structure. The content of the element in the teeth varies with the content in the drinking water. Continuous exposure to 0.3 ppm results in a fluorine content in the enamel of 0.01 per cent and in the dentine of 0.023 per cent; exposure to 1.1 ppm gives concentration of 0.0135 and 0.0385 per cent for enamel and dentine respectively. Statistics indicate that in fluoride areas lactobacillus counts in children are zero in twice as many as in fluoride free areas. Even if present the counts are lower in the fluoride areas. This organism has been incriminated as a probable factor in dental caries.

Traces of fluorine occur in most foods but intake through these sources is much less than a mg. per day. In drinking water containing 1.0 ppm the intake is about 1.2-1.6 mg. per day. Fluorine readily passes the placenta. It is stored in bones, enamel and dentine. With radioactive fluorine it has been shown that storage uptake may be as high as 50 per cent and then as balance is established excretion runs to 70-90 per cent of intake. No changes occur in the content of calcium, phosphorus or other elements. Studies on children and young adults living continuously in areas where drinking water contains 2.0-5.0 ppm of fluorine show no increased incidence of fractures nor deviations in height or body weight. Hypocalcified mottled enamel is the specific toxic effect of moderately excessive chronic intake of fluorine by children.

The unusual amount of fluoride recommended in waters is 1.0 ppm. This causes mild mottling which only a dentist would recognize. It may be added to water supplies either as sodium fluoride or sodium silicofluoride.

What of the effectiveness of fluoridation of water supplies in terms of decreased dental caries? Should we as a profession join

\*Fluoridation in the prevention of dental caries, Council on Dental Health, American Dental Association, 1951.

†Parts per million.



the American Dental Association in recommending it to the public? When a study was begun in the fluoridation of the water supplies in certain cities it was estimated by the U. S. Public Health Service that a decade must elapse before its effectiveness might be established. This time has not passed as yet.

Statistics indicate that dental caries is three times more prevalent in children born in fluoride-free areas than in those areas having fluoride concentrations of at least 1 ppm. Though they need not be born in the fluoride areas the earlier they are exposed to the element, the better,—i.e., the greatest effect is obtained during the time of tooth development either deciduous or permanent. Some half dozen cities in several parts of the country initiated studies during 1945-46 of the results of fluoridation.

The Newburgh-Kingston (N. Y.) study<sup>‡</sup> may be taken as an example. Over 3,000 children ages 5-12 years were compared in this study, the Kingston group being controls, the Newburgh group being exposed to fluoridation. After 4 years of exposure to fluorine the DMF (decayed, missing, filled teeth) per 100 permanent teeth dropped from 20.6 to 13.9 (a reduction of 32.5 per cent) whereas it remained at 20.2 in the control Kingston children. Caries-free first permanent molars increased in Newburgh with fluoridation from 58.9 to 76.9 per 100 first molars in the 6-9 year olds and from 23.8 to 32.5 in 10-12 year olds. In the control group there was no change. X-ray examinations confirmed the clinical findings. Though in both groups the deciduous caries was less than previously in the 5-8 year olds, the increase in Kingston was 6.7 per 100 children, in which all deciduous cuspids and molars were free of caries, in Newburgh with fluoridation the increase was 12.3 per 100.

Surely at this time the physician may reassure the parents of his young patients that fluoridation of water supplies can have

no deleterious effects on the child. Generations and millions of persons in this country have lived in areas where exposure to fluorine has been much greater than that used prophylactically. Furthermore, though studies are not complete, accumulating evidence indicates that fluorine probably has a definite effect in the reduction of dental caries if made available to children during the period of tooth development.

R. H. K.



#### DIAMOND ANNIVERSARY OF THE MEMPHIS AND SHELBY COUNTY MEDICAL SOCIETY

In 1876 was founded the Shelby County Medical Society. A small group of men had the vision in the Spring of that year to organize a medical society which, with the passage of years, would grow to become a potent force in medicine in Tennessee, not only from the professional and scientific viewpoints, but also from that of leadership in organized medicine. The organizing doctors found that twenty-eight physicians of Memphis were eligible for membership. From such a beginning grew the present Memphis and Shelby County Medical Society with a membership of five hundred and fifty. Its publication, the Memphis Medical Journal, was established in 1924 after several abortive attempts to provide for a record of the proceedings of the Society.

No road is endlessly smooth and rough spots are a certainty. From an historical review of its seventy-five years one learns that the Memphis and Shelby County Medical Society has had its heated episodes. Human nature has provided factions not only for internal strife but also for friction upon times with nearby medical societies and the State Medical Association itself. But from such experiences has been welded an organization which has shown leadership and no doubt will provide the "professional cement" which conceivably may be needed in coming years.

R. H. K.

<sup>‡</sup>Ast, D. B., Finn, S. D., and Chase, Helen, Newburgh-Kingston caries fluorine study. III. Further analysis of dental findings including permanent and deciduous dentitions after four years of fluoridation, J.A.D.A., 42:188, 1951.

\*Bruesch, S. R., Old Times in Memphis Medicine, Memphis M. J., 26:118, 1951.

## THE "STINSON PLAN"

In the July issue of the JOURNAL OF THE TENNESSEE STATE MEDICAL ASSOCIATION was published a plan by Dr. William Stinson, President of the Memphis and Shelby County Medical Society, for the consolidation of various medical activities which are forced upon the members of his Society. Officers of the urban county medical societies are constantly confronted with this problem of meeting after meeting which the doctors must attend.

The attendance at hospital staff meetings is so mandatory in some instances that the doctor cannot but put in his appearance. In addition there have sprung up, in the past decade, societies for those having special medical interests of one type or another.

These several factors then have resulted in a meager attendance at the meetings of the county medical societies in the cities. It is unfortunate that this should be so since probably there has been no time in the history of American Medicine in which the whole-hearted unity of the medical profession has been so essential as the present. Diversity of interests and loosened bonds of fraternal unity weaken the facet the medical profession might present to the forces that are aimed at destroying the fundamental concepts of American freedom of living as one chooses.

Dr. Stinson's plan or some variant of it should be approved by those committees or boards which set the rules for hospital staffs. Surely it is not asking too much to permit the amalgamation of hospital staff scientific meetings thereby reducing the total number of meetings doctors must attend. (The executive committees of the hospital staffs could continue their meetings monthly to carry out their functions.)

The executive bodies of the county societies, which suffer by this mushrooming of meetings, should urge upon those responsible for the approval of hospitals, permission to work-out some type of cooperative or inter-hospital staff meetings. This is a time for strengthening the units of organized medicine, not weakening them.

R. H. K.

## WHAT'S NEW IN MEDICINE

### Treatment of Waterhouse-Friderichsen Syndrome by Cortisone

This syndrome of circulatory collapse has been recognized as the cause of death in fulminant infections notably in meningococcal infection especially in children. At first the syndrome was thought to be due to hemorrhage in the adrenal glands. Now it is known this is not pathognomonic and probably incidental. Pathologists feel adrenal degeneration explains the picture. The syndrome thus may represent acute adrenal insufficiency.

Working on this basis, Nelson and Goldstein (J.A.M.A. 146:1193, 1951) report 2 cases of this syndrome treated by the use of cortisone, one a boy aged 11 years, the other a 28-year-old woman, both suffering from meningococcal infection. Recovery occurred in both.



### Virilizing Syndrome in Women and 17-Ketosteroid Excretion

Boyer and Koets (Am. J. M. Sc., 222:13, 1951) studied 17-ketosteroid excretion in females showing symptoms of virilism in terms of hirsutism, masculinization of body form and menstrual abnormality.

17-ketosteroid excretion levels are quite variable in the normal as well as in the presence of the virilizing syndrome. Yet it seems from these studies that in the presence of one of the three signs the hormonal excretion was in general higher than in the normal, still higher with two signs and always a pathological excretion if the whole syndrome was present.

The degree of hirsutism may not only be an expression of 17-ketosteroid excretion, but also must be dependent upon constitutional factors permitting excessive hair growth.



### Whipple's Intestinal Lipodystrophy a Manifestation of the Rheumatic State

Peterson and Kampmeier (Am. J. M. Sc., 221:543, 1951) from a study of 4 instances of this rare disease and of those described



in the literature feel this disease is to be classified with the so-called "collagen diseases." Their theory is based on the circumstantial evidence of the frequency with which arthritis occurs in the history and the high incidence of pleural and pericardial involvement found at necropsy. One of their cases had disseminated lupus as part of the clinical picture of Whipple's disease.

Though intestinal lipodystrophy is rarely encountered, the author's theories concerning its etiology and pathogenesis are important in broadening the concept of diffuse vascular disease as a basis for certain clinical pictures. Vasculitis, due to sensitization, of certain grades of severity and manifest in certain anatomic structures may account for the diseases of rheumatic fever, rheumatoid arthritis, dermatomyositis, scleroderma, periarteritis nodosum, disseminated lupus erythematosus, certain erythemas and intestinal lipodystrophy.

## DEATHS

### In Memoriam

#### Elroy Scruggs, M.D.

The Henry County Medical Society deeply regrets the loss sustained in the passing of Dr. Elroy Scruggs on March 17, 1951, at the age of 71. The profession has lost a devoted and conscientious physician, one ever ready to respond to insistent calls of the art in which he had spent his life. Yet, he was always able to find the time to aid, or offer wise counsel, in matters outside the medical profession. There was always time for a large contribution to the civic and religious life of his community.

Dr. Scruggs received his medical degree in 1913 from Vanderbilt University, and had resided in Paris since 1919. He was a Mason for 35 years, and a member of the Order of Eastern Star. He was Chairman of the Board of Directors of Paris Federal Savings and Loan Association, and had various other business interests, among which was a radio station which he was greatly instrumental in procuring for Paris. He was active in the First Methodist Church, of which he was a member of the Board of

Stewards. He was a member of the Tennessee State Medical Association, and the American Medical Association. During World War II he served as physician for the Henry County Draft Board.

His unfailing good humor and cheer, his love for the practice of medicine, and his devotion to his patients, endeared him to all who knew him.

He has passed from this realm into another. We who are left shall remember his good works, and the affection we had for him. We are all born to die; let us, therefore, so live, and work, that it might be said as it is said for him, he was a good Christian physician.

Whereas, we the Henry County Medical Society, do hereby express our deepest and most sincere sympathy to the loved ones who have suffered the great loss of the passing of Dr. Scruggs.

Therefore, be it resolved that a copy of these expressions be written in the minutes of this society, a copy sent to his wife and family, and a copy mailed to the Tennessee State Medical Journal.

Signed,

John E. Neumann, M.D.  
Secretary, Henry County  
Medical Society

Committee on Memoirs:

J. Ray Smith, M.D.

I. H. Jones, M.D.

J. E. Neumann, M.D.

★

**Dr. George Byron Alder.** Chattanooga, died August 9, 1951. Dr. Alder practiced medicine at Coalmont, Tennessee, before moving to Chattanooga. Interment at Forest Hill Cemetery. Aged 65.

★

**Dr. James Edmond Fisher,** a native Smith Countian, died at his home in Rome August 10, 1951. Dr. Fisher practiced medicine in rural Smith County for 43 years. Aged 71.

★

**Dr. J. Hamilton Taylor,** practicing physician in Chattanooga for the past 41 years, died at his home on August 5, 1951. Members of the Chattanooga-Hamilton County Medical Society were honorary pallbearers.

## PROGRAMS AND NEWS OF MEDICAL SOCIETIES

### Chattanooga-Hamilton County Society

Four papers were scheduled for delivery before the Society at its regular semi-monthly meeting August 9 held in the Interstate Life Insurance Company's auditorium. Dr. George Henshall's subject was "Treatment of Lymphoblastic Disease"; Dr. Clarence Shaw discussed "A Practical Demonstration of Dermatological Nursing Technique"; Dr. Irving Grote and Dr. John W. Bradley collaborated on "The Birth of a New Drug."

The August 23 meeting presented Dr. John F. Hoover who read a paper on "Non-specific Gastroenteritis"; Dr. George Shelton discussed "Functional Disorders of the Feet in Childhood"; and Dr. Browning of Lederle Laboratories spoke on "Aureomycin."



### Memphis and Shelby County Society

The Society held its diamond anniversary on August 7 at the Memphis Country Club. The Program Committee appropriately planned a symposium on "Geriatrics" for the seventy-fifth annual program. The scientific program was preceded by a barbecue. Dr. J. J. Hobson, Editor of the Memphis Medical Journal, commented that "Those of us who are not at present personally interested in this subject (Geriatrics) will be, all too soon, so it is anticipated that there will be a large attendance at the 75th Anniversary meeting)." Editor Hobson has rendered a signal service to the Society by dedicating the August issue of the Memphis Medical Journal to the commemoration of their historic meeting. The issue, with the exception of the splendid editorial, carried only an address on "Old Times in Memphis Medicine" by Dr. S. R. Bruesch. The recounting of the 75 years of medical history in Memphis in such a spicy and informative way is a valuable contribution to the historical annals of medicine in Tennessee.



### Nashville Academy of Medicine

The attractive yearbook of the Nashville

Academy, recently distributed, is evidence of great interest and careful planning for the next Academy year. Programs for 1951-52 emphasize two important phases of medical society work—excellent scientific programs and Public Service. An outstanding project of the Academy in the immediate future is the Annual Postgraduate Medical Assembly which the Academy sponsors each year. The Assembly will be held in Nashville, October 3-5, with headquarters at the Maxwell House. The Assembly will feature outstanding guest speakers in the fields of surgery, audiology, pediatrics, proctology, urology, medicine, obstetrics, neurosurgery, and gynecology. In addition to the formal lectures, there will be symposia, conferences, clinical demonstrations, round-table luncheons, technical exhibits, and entertainment. An annual banquet will round out an outstanding 2-day meeting which will attract physicians from all over Tennessee and adjoining states.

The Nashville Academy is closing its first year under a greatly expanded organizational set-up. One year ago the Academy raised its dues to provide funds for establishing a business office and employing a full-time executive secretary for administering the business affairs of the Academy and for expanding the Academy's public service and public relations projects.

The Academy has forged rapidly to the forefront among larger county societies which are alert to the importance of good medical public relations. The public service projects such as its press-radio cooperation code, speaker's bureau, emergency call service, civil defense, grievance committee, business office, legislative activities, pre-paid insurance, and personnel placement bureau (for physician's employees) have had national publicity. The Academy's Press-Radio Code has become the pattern for other societies throughout the nation. The Code will be the basis for an illustrated feature article in the September issue of *Medical Economics*. The Code and other public service projects of the Academy have had national circulation to medical societies through the PR Exchange and PR Doctor distributed by the Public Relations Department of the AMA.



## MEDICAL NEWS IN TENNESSEE

### Postgraduate Instructor Appointed



JOHN F. DEE, M.D.

The Committee on Postgraduate Instruction announces the appointment of Dr. John F. Dee of Springfield, Massachusetts, as Instructor for the 2-year postgraduate course in Internal Medicine and Circulatory Diseases.

Dr. Dee, thirty-nine years of age, is a graduate of the University of New Hampshire. He received his M.D. degree from the Boston University School of Medicine in 1938. Later, Dr. Dee completed his fellowship and special training at the Lahey Clinic.

His military service in World War II included duty at Kennedy Hospital, Memphis; the European theater; the South Pacific; and Japan. His military service interrupted his Fellowship at Lahey Clinic, but was completed in December, 1947.

Since his release from military service, he has been in private practice and teaching.

Dr. Dee was scheduled to arrive in Tennessee about August 15 to complete his manual for the new course. Teaching centers already set up are as follows: Jackson, Brownsville, Selmer, Covington, and Bolivar. Instruction at these centers was scheduled to begin September 3. From this

area, the course will move eastward through the winter months.

The Postgraduate Committee in announcing Dr. Dee's appointment said: "The committee feels that Dr. Dee possesses the training and experience to enable him to know at first hand the problems of private practice (of Internal Medicine and Circulatory Diseases.)

"The Committee wishes to call attention to the raise in fees for this course from \$10.00 to \$20.00. For a long time, your Committee has been able to avoid a raise in the fee while all other prices have been raised. The gracious contributions of the Commonwealth Fund ended with the last course. The Tennessee State Medical Association, the Postgraduate Committee, and the physicians of this state appreciate the long and liberal support the Commonwealth Fund has given postgraduate study in Tennessee.

"Your Committee find by inquiry that similar programs in other states have fees from \$25.00 to \$60.00. Our Course of ten weeks also cost the physician far less than travel and loss of time attending courses in medical centers. The Committee hopes that the new course in Internal Medicine will be the most successful in the Committee's 16 years of experience."

Upon learning that financial support from the Commonwealth Fund would be no longer available to the Postgraduate Committee, the Tennessee State Medical Association has upped its contribution from \$3,000 annually to \$10,000. This additional support of the postgraduate program was possible because of the improved financial condition of the Association since state dues were raised in 1950.

The Committee said that a detailed announcement including an outline of the Course will be available soon. (Watch for this announcement in this column).

Members of the Postgraduate Committee of the Tennessee State Medical Association are:

W. C. Colbert, M.D., Memphis, Chairman  
Harold B. Boyd, M.D., Memphis  
E. T. Brading, M.D., Johnson City  
Robert M. Finks, M.D., Nashville  
A. M. Patterson, M.D., Chattanooga

Carrol C. Turner, M.D., Memphis  
Bart N. White, M.D., Murfreesboro  
John B. Youmans, M.D., Nashville  
James M. Bethea, M.D., Memphis

The Committee's headquarters are located at 4 South Dunlap, University Center, Memphis 3. The Field Director is Mr. L. W. Kibler.



## A Hearing and Speech Center Is Organized

*The Tennessee Hearing and Speech Foundation*

FREEMAN MCCONNELL, PH.D.

Director

W. W. WILKERSON, JR., M.D.

President

Tennessee Hearing and Speech Foundation  
2109 Garland Avenue  
Nashville, Tennessee

### I. Administrative Organization

In order to meet the long-felt need for clinical services for persons with defective hearing and speech in this state, the Tennessee Hearing and Speech Foundation has been organized and clinical facilities established in Nashville. The Foundation, a non-profit organization chartered under the laws of the State of Tennessee, is a cooperative enterprise sponsored and supported by more than forty public agencies and community civic organizations. The Davidson County Board of Health took an early lead by allocating funds to the Foundation on a contractual basis. The state legislature made a generous appropriation to be used under the auspices of the Division of Crippled Children's Services of the State Health Department to aid speech and hearing handicapped persons through a state-wide screening testing program and to aid the Tennessee Hearing and Speech Foundation in the establishing of other Centers throughout the State. This program has been described in the preceding issue of this JOURNAL.

The Nashville City Department of Health and the Davidson County Board of Education have also agreed to provide funds which will be used in paying for clinical services and for the establishment of a pre-school acoustic classroom. The United States Children's Bureau has made an important contribution by allocating federal funds to

the State Department of Health, Division of Maternal and Child Health, for the purchase of clinic and training equipment and for acoustical materials which will be used in the soundproofing of three hearing clinic rooms. The Tennessee Society for Crippled Children and Adults, the Davidson County Chapter of the Tennessee Society for Crippled Children and Adults, the Nashville Civitan Club, supported by the *Nashville Banner*, and other organizations, including labor unions, have made financial gifts to the Foundation to pay for equipment and services.

Housing for the Hearing and Speech Center is being provided without charge by Vanderbilt University School of Medicine. These clinic headquarters are located in a two-story brick residence at 2109 Garland Avenue across the street from Vanderbilt Hospital.

With the cooperation of Vanderbilt University and George Peabody College for Teachers a training program is being planned which will offer a curriculum in audiology and speech pathology, both on the undergraduate and the graduate level. The courses will be taught by the Foundation staff.

In summary, it is now evident that the Tennessee Hearing and Speech Foundation is truly a cooperative enterprise. It is this kind of integrated teamwork on the part of many groups and persons which has been the goal of the Foundation's Board of Directors in achieving a strong speech and hearing program for Tennessee.

### II. Clinical Services

With this introduction to the organizational facets of the Tennessee Hearing and Speech Foundation, a brief presentation of the types of clinical services offered may now be in order. The clinical functions of a hearing and speech center can be divided into two chief categories: (1) examination and diagnosis, and (2) training or therapy. Both of these functions are non-medical and are carried out subsequent to medical examination and treatment.

The kind of examination given depends upon the type of case. Briefly, this depends upon whether hearing loss is or is not a causative factor in each instance. For



all cases in which lack of hearing acuity is suspected or known to be present, the examination is called an "audiological assessment." This terminology is used because it implies more than mere testing of hearing acuity, although hearing tests are a vital part of the procedure. Whenever possible, a complete audiometric analysis is completed, including pure tone air and bone conduction tests to afford an accurate, analytic quantitative measure of hearing, and speech audiometry to provide a single quantitative measure of one's ability to hear the spoken voice, the most important sound of all to man. Tests for psychogenic hearing loss and malingering are given if indicated.

Because individuals vary in ability to discriminate between the sounds of language, standardized speech discrimination tests are given to assess the prognosis for hearing aid use and to determine the need for speechreading. The audiological assessment implies, therefore, a battery of scientific tests with interviews, counseling, and recommendations. The nature of the hearing loss is explained to the patient in an effort to give him insight into his hearing problem. He is told why he may hear certain sounds well and others not at all. He is given full instruction in the various ways to utilize best the residue of hearing he has and to accept realistically the limitations his hearing loss imposes on communication.

In the case of young children with suspected deafness, testing procedures must be varied to give basis for differential diagnosis in assessing the role of hearing in the particular problem. Psychometric tests and clinical observation are used to supplement hearing testing techniques.

Examination of all cases who have speech defects not related to hearing impairment is in the form of a speech evaluation, which includes interviewing for developmental, medical, and social history, articulation testing, and screening testing of hearing, vision, intellectual functioning, social competence, motor coordination, and laterality. A thorough evaluation can be achieved only by sampling a child's performance in many areas. Speech clinicians cannot afford to focus all their attention on a pair of ears and a deviated tongue. In arriving at

the origin of a particular speech problem and in determining the most effective approach toward remedy of it, many factors are considered. Recommendations are varied according to individual needs.

The third important testing service, hearing aid evaluation, will be available upon completion of the soundproof rooms of the hearing clinic within the near future. The hearing center will conduct detailed tests to determine and compare the performance characteristics of several hearing aids for the client. A detailed analysis of the person's hearing problem and his prognosis for hearing aid use will be an integral part of the hearing aid evaluation.

At no time will the hearing clinic undertake to sell hearing aids. Instead, a stock of AMA approved instruments, maintained by hearing aid dealers, will be kept at the clinic for testing purposes only. The test results will be fully discussed with the patient. Recommendations will be based on the over-all results of several different tests, namely, sensitivity, discrimination, and tolerance, each under varying conditions, but conditions which are kept carefully standardized from one instrument to the next. When two or more instruments seem equally satisfactory, recommendations will depend upon patient preference and availability of service in the patient's local area.

The Hearing and Speech Center undertakes any of the above examinations for the purpose of discovering the true nature of the particular hearing and or speech problem involved, and to use the information obtained in arriving at the best clinical approach to aid each individual.

Help for any individual is most often accomplished in a hearing and speech center by a training program, which is effective in a large majority of cases. For the hard of hearing, lessons in speechreading, auditory training, and speech correction are often needed. For the young deaf child and for delayed speech cases the approach to training must be speech development, not speech correction, with attention to the total language processes. Those with speech defects of rhythm, voice quality, and articulation are given individual or group training suited to their particular needs.

It is important to point out that a hearing and speech center cannot be a panacea to all ills nor can it offer "cures." Speech improvement can be brought about only through a combination of several important factors, including parent attitudes, pupil motivation, favorable physical condition, and degree of inherent intelligence. Furthermore, incorrect speech patterns once established do not change easily, as witness the foreign dialect of persons who have been in this country many years, and therefore a period of prolonged instruction is needed more often than not.

For those children who have severe sensory or neurological defect, special training is usually needed indefinitely, and for such children the total educational needs cannot be met by speech training alone. Rather, speech training is given to reenforce and to aid the full-time educational training which must be provided if the child is to achieve independent adulthood. The goals of the speech and hearing center are, of course, normal speech patterns for all cases where normalcy is possible. For many of the severer cases, the goal of normalcy in speech is impracticable and not consistent with reality. Thus the goal becomes intelligible speech which will enable the person to function in a speaking world. In making judgments on the speech of a particular case, therefore, the goals for that individual must always be considered.

### III. Medical Referral Policies

With the foregoing introduction to the organization, activities, and objectives of the Hearing and Speech Foundation, let us now examine the procedures for referring patients to the Center. The clinic facilities are available to persons of all ages, races, and religious creeds. Any member of the Tennessee State Medical Association may make referrals, and other physicians may refer patients to the Center through members of the State Association. Medical policies for the Foundation are determined by a Medical Advisory Committee, which was appointed by the Nashville Academy of Medicine.

The Hearing and Speech Foundation has been founded on the predication that the

combined teamwork of the physician, the audiologist, the psychologist, and the educator is necessary to provide adequately for the needs of speech and hearing handicapped persons. Medical examination is therefore imperative as a prerequisite to admittance to the Hearing and Speech Center. The importance of adequate medical attention both from a preventive and a therapeutic standpoint does not need emphasis here. The Hearing and Speech Foundation is firmly committed to the thesis that the rehabilitative measures in the hearing and speech clinic are directly dependent for their success on the extent to which the medical needs of each case are met.

Because the majority of cases seeking help for speech and hearing problems will have, if there is organic involvement, pathology in the nasal, oral, laryngeal, or pharyngeal regions, the ear, nose, and throat specialists have been designated by the Medical Advisory Committee as the one group who should serve as the "clearing house" for all cases. The ENT physicians, therefore, may refer their patients directly to the Center, if no other examination in their judgment is indicated. General practitioners and other physicians may refer their patients to an ENT physician of their choice. Medical report forms from the Foundation will be mailed upon request to all physicians desiring to make referrals. This form is also available through the Tennessee State Medical Association and may be obtained by writing Mr. Ed Bridges, Field Secretary. The medical report form was designed by the Medical Advisory Committee and was planned in order to give to the Hearing and Speech Center pertinent information on each case without being so detailed as to be cumbersome and time-consuming to the physician.

The referring physicians may make appointments for examination for their cases at the Center (2109 Garland Avenue, Nashville, Phone 9-5651, Station 508) or may direct the parents to call or write directly for an appointment. Tentative appointments can be made if arrangements for the medical examination and referral have been initiated. These appointments are contingent



upon receiving a written report or any direct communication from the physician. The clinical staff prepares and sends a full written report of each examination to the referring and to the consultant physicians for each case. Progress reports on the clinical training are sent periodically, and physicians may feel free to make inquiries about the training of their patients. Because of the close relationship between a patient and his family physician, the Hearing and Speech Center wishes to encourage the follow-up care by the family doctor, and his recommendations are welcomed.

In closing, the Tennessee Hearing and Speech Foundation has welcomed this opportunity to acquaint the members of the medical profession with the details of the speech and hearing program. Audiology and speech pathology function best in close cooperation with the medical profession, and to this end, this paper is written.



### University of Tennessee College of Medicine

The Atomic Energy Commission has awarded \$30,406 for the continuation of research with radioactive isotopes until July, 1952. In the Department of Chemistry, Dr. J. L. Wood will study thiocyanate ion with radioactive sulfur, and Dr. E. F. Williams will use radioactive calcium in a study of its metabolism. In the Division of Physiology, Doctors J. P. Quigley and R. R. Overman will study respectively metabolism in the thyroid gland and cell membrane permeability. A joint study by members of the Departments of Pathology, Radiology and Medicine will attack the problem of the use of radioactive iodine in cancer and other diseases of the thyroid gland.



Dr. F. Harrison, Chief of the Division of Anatomy, has resigned to join the faculty of Southwestern Medical School of the University of Texas at Dallas.



Dr. R. H. Alden, on the faculty of the Division of Anatomy since 1942, has been named chief of the Division to succeed Dr. Harrison.

On October 4 a program has been prepared for the dedication of the new Cancer Research Laboratory and Institute of Pathology. It will also observe a century of continuous medical education in Tennessee (see J. Tennessee M. A., 44:357, Aug. 1951) and the eminent expansion of the College.

In addition to speeches by Dr. L. A. Scheele, Surgeon-general U. S. Public Health Service and Dr. A. F. Waterman, Director of the National Science Foundation, the program will present the following:

"The Place of Pathology in Medical Education," Dr. R. A. Moore, St. Louis.

"Recent Advances and Future Possibilities of Cancer Research," Dr. C. P. Rhoads, New York.

"The Effects of Wounds on the Circulation," Dr. H. K. Beecher, Boston.

"Some Aspects of Steroid Metabolism," Dr. E. A. Doisy, St. Louis.

Dr. J. W. Cline, A.M.A. President, will give the principal address at the evening session. He will discuss medical education.

## PERSONAL NEWS

**Dr. James Heward Smith**, Memphis, has volunteered to return to regular army duty with the rank of Lieutenant Colonel. He left last month for Camp Kilmer, N. J., for transfer to an undisclosed post in Europe.

**Dr. C. C. Demmer**, Director of Hospital Services, Tennessee Department of Public Health has resigned effective the "latter part of September." Dr. Demmer has been with the Department since 1947, prior to which time he had had a 35-year career in the Army Medical Corps. He was retired with the rank of colonel.

**Dr. William B. R. Beasley**, young Memphis physician, will go to a remote village, Bolahun, in Liberia. He has accepted an appointment by the Order of the Holy Cross for his work in the African tropics.

**Dr. Jack Thompson**, Jackson, heads a nine-man medical advisory committee to the "Blood for Defense" program of the Jackson Chapter of the Red Cross. The Committee was appointed by the Consolidated Medical Assembly last month.

**Dr. Donald M. Qualls**, son of Dr. and Mrs. A. B. Qualls of Livingston, returned from Liberia for a visit with his parents last month. The young Dr. Qualls is on the staff of the Firestone Rubber Company's hospital in Harvel, Liberia.

**Dr. Harold Alper**, Chattanooga surgeon, was recently elected a Senior Fellow of the Southeastern Surgical Congress.

**Dr. H. H. Shoulders**, Nashville, former Secretary-Editor of this Association and a past president of the AMA, has been appointed Tennessee chairman of the National Doctors Committee for Improved Federal Medical Services.

**Dr. Leo C. Harris, Jr.**, formerly of Lawrenceburg, has gone to Decatur, Alabama to practice. (New address—Decatur Clinic.)

Two Memphis physicians, we'll call them **Drs. Anonymous**, did a fine thing in cancelling their bills recently for services rendered a hard-hit Memphis family. The father and mother died within one month of each other, leaving three children. The oldest son was also scheduled for induction into military service. We add our congratulations to that of the Memphis press.

**Dr. Harry Helm**, formerly of White Pine and Oak Ridge, is now practicing in Columbia.

**Dr. James W. Polk**, a native Obion countian, has established an office in Union City.

**Dr. T. A. Walker**, Erin, has recently opened a modern clinic. The clinic was described as "one of the best planned and equipped of its kind in this section" by the local press.

**Dr. Elsbeth Gehorsam**, a Memphis psychiatrist, announces the removal of her office to 16 S. Avalon Street at Madison.

## WOMAN'S AUXILIARY

The Board of Directors and Committee Chairmen of the Woman's Auxiliary to the Tennessee State Medical Association assembled in Nashville September 6th, chartered policies and approved projects for the ensuing year.

Mrs. Lynch D. Bennett of Nashville, new

State President, conducted the afternoon session in the Doctor's Building and the Evening Dinner Meeting at Belle Meade Country Club.

Those attending were: Mrs. C. B. Roberts of Sparta, Essay Contest Chairman; Mrs. Fred Terry of Cookeville, President of the Five County Auxiliary; Mrs. Park Niceley of Knoxville, immediate Past State President; Mrs. George Tharp of Knoxville, East Tennessee Vice-President; Mrs. Lea Callaway of Maryville, Today's Health Chairman; Mrs. H. L. Monroe of Erwin, Recording Secretary; Mrs. Elmer Pearson of Elizabethton, Tri-County Auxiliary President; Mrs. Roy A. Douglass of Huntingdon, Consolidated Auxiliary President; Mrs. A. B. Scoville, Jr., of Nashville, Program Chairman; Mrs. W. O. Tirrill of Nashville, Treasurer; Mrs. Chas. C. Trabue IV, of Nashville, Corresponding Secretary; Mrs. W. W. Hubbard of Nashville, Davidson County Auxiliary President; Mrs. Ralph Hamilton of Knoxville, President-Elect of the Knoxville Auxiliary; Mrs. E. E. Wilkinson of Nashville, Press and Publicity Chairman; Mrs. Clyde Croswell of Memphis, Director; Mrs. Carrol Turner of Memphis, Director; Mrs. Oscar G. Nelson of Nashville, Parliamentarian; Mrs. Sam Prevo of Nashville, Middle Tennessee Vice-President; Mrs. W. O. Baird of Henderson, West Tennessee Vice-President; Mrs. C. W. Miller, Jr., of Memphis, Bulletin Chairman; and Mrs. H. D. Gray, Memphis Auxiliary President.

Mrs. David Hickey of Chattanooga, Public Relations Chairman, who was ill and unable to attend, sent in for approval a solid list of projects as follows. She proposed:

1. An effective endorsement drive among organizations of the State.

2. Participation in the work of Speaker's Bureau of medical societies.

3. A well organized system for distribution of literature with a selective mailing list.

4. Newsworthy publicity to be sent to Women's Page and News Page Editors, based on actual accomplishments.

5. Have five minute speakers at each Auxiliary Meeting on present conditions of medical care, review of books or magazine articles; or a discussion period on



(Health Insurance—Compulsory or Voluntary).

6. A close allowance with the dental and drug societies.

7. Auxiliary sponsorship of courses for receptionists on (1. How to handle a patient or prospective patient by telephone;) (2. How to handle patients and their relatives in reception rooms); and (3. How to handle a patient's insurance papers).

8. Joint meetings of all doctors and all doctors' wives of the various areas to discuss public service and legislative problems and work out solutions.

9. A systematic reporting of Auxiliary News to the TSMA Journal, especially for the Quarterly Newsletter.

10. At least four weekly "Morning Coffee" sessions to study legislation pending or expected in Congress or the State Legislature.

11. Active cooperation in the P.T.A. Summer Roundup of Pre-School Children and all other school health programs.

Mrs. Tirrill reported receipts of \$827.20 coming from \$10.00 in dues, \$2.41 from the former administration and \$814.79 balance brought forward. She reported expenses of \$131.90 which covered \$106.97 for the April Convention, \$5.00 dues sent to the National Auxiliary and \$19.93 for supplies. The balance on hand was \$695.30.

Mrs. Roberts disclosed that the Education Committee of the TSMA had decided to support an Essay Contest again for the coming year. She said the fine results of last years contest would be accepted as a challenge to achieve even better results. Members were urged to suggest a title for the contest, and Mrs. Roberts emphasized that the general theme should be based on a deep appreciation of this country and its opportunities and the privileges and responsibilities of youth as future citizens.

She said regulations and source material would be sent out to local Auxiliary Chairmen in time for their October meeting.

Mrs. Niceley reported that last year's Contest winner, Altha Jane Turner of Knoxville, already had begun her first year at Maryville College on a scholarship obtained through the efforts of a Chattanooga philanthropist and the TSMA.

Mrs. Tharp reported there were four possible areas for organization of Auxiliaries in East Tennessee and that every effort would be made toward this goal.

Mrs. Prevo said that Middle Tennessee had 15 members at large and the possibility of organizing an Auxiliary in Maury County was being investigated.

Mrs. Calloway reported 432 subscriptions for Today's Health during the year. She urged that every doctor's wife set an example by subscribing to and systematically reading the magazine. At the evening meeting she called the AMA publication "Our Best Weapon" in the fight to extend medical care into rural areas.

Mrs. Trabue reported that she and Mrs. Hubbard had reorganized the Auxiliary files and transferred them to the TSMA State Headquarters. She also reported the scrap-book up to date and said a special type was being made for the future.

Mrs. Scoville said the program would be worked out later and Mrs. Bennett announced that the TSMA had just decided upon April 7, 8, 9, 1952 for the Annual Session in Knoxville.

Mrs. Harold F. Wahlquist of Minneapolis, President of the National Auxiliary, will be invited as the guest speaker for the 1952 Convention in Knoxville. Portions of a letter from her to Mrs. Bennett were read to the meeting.

Mrs. Wilkinson asked for reaction to the first Woman's Auxiliary Newsletter, and it was commended by those attending. She urged that every Auxiliary report all its activities. It was decided to expand the mailing list to include the wife of every member of the TSMA.

An appeal for many more subscriptions to the National Bulletin came from Mrs. C. W. Miller, Jr., of Memphis, Bulletin Chairman. She requested and received specific authority to promote increased subscriptions.

Mrs. Bennett said the State Council of the Parent Teacher Association had agreed to give the Auxiliary a 15-minute spot on its program in Nashville, September 17th on the subject of Compulsory Health Insurance.

Mrs. Bennett was authorized to represent

the Auxiliary at the P.T.A. meeting, looking toward the possibility of a P.T.A. resolution endorsing Voluntary Health Insurance. Mrs. Gray contributed information for use by Mrs. Bennett at this meeting.

At the Dinner Meeting, the guest speaker was Dr. Wm. N. Cook of Columbia, Chairman of the TSMA's recently organized Rural Health Committee.

Dr. Cook disclosed that the Committee's first project would be to stimulate the organization of Local Health Councils by laymen throughout the State, first in the areas suffering shortages of medical manpower nurses, hospital facilities and public health services.

Dr. Cook listed eleven possible projects for such Health Councils. An appeal for support for the State and Local Auxiliaries. He said experience had proven that women did particularly good work on such a project. (See yellow section on "Public Service in this issue of the Journal).

Mrs. Carrol Turner, following Dr. Cook, told of a proposed health survey for Memphis and Shelby County and suggested such surveys must be made in all areas as a guide to the adoption of the most needed projects. Mrs. Turner lead discussion of the Health Council proposal among the other members.

On motion of Mrs. Trabue, the Directors and Chairmen voted state-wide and local support of the Rural Health Committee's first project—the stimulation of organization of Local Health Councils as a potent force in improving Tennessee health conditions.

Detailed information on the purposes, organization and proposed projects for Local Health Councils will be mailed to all Local Auxiliary's for dissemination to members. It was suggested that each Auxiliary devote one meeting to discussion of how members individually could help the Rural Health Committee stimulate for formation of Health Councils.

## LOCATION WANTED

*A young physician serving an internship out of state desires to find a location in Tennessee. Part of his letter follows:*

"I graduated from the University of Tennessee College of Medicine in December, 1950. I am serving a one year internship in Lima Memorial Hospital (Lima, Ohio), and am to complete the period December 31, 1951. I shall be available in January, 1952. I am licensed in Tennessee.

"I am twenty-seven years old and unmarried. The size and nature of the community is not of the greatest importance to me. I would prefer to find an area that has a doctor who wants an associate, or at least find a place where there is another doctor near by. . . . I plan to take a vacation in two months and look around a bit over the locations available. I thank you very much for your consideration of this matter."

The physician's name and address will be furnished upon inquiry addressed to the Executive Secretary. (LW-I)

★

## General Practitioner Wanted

An established physician in a West Tennessee town of 10,000 population has advised this office that there is an excellent opening for a general practitioner there. The name of the informing physician and the town will be furnished upon request by the Executive Secretary. (PW-I)

★

A 26-year-old physician desiring a location in Tennessee writes us as follows: "I will complete my rotating internship at the John Gaston Hospital, Memphis on November 1, 1951. At that time I will be 27 years of age. I am married, have one child. I am a veteran of World War II with 31 months' service, 19 months of which was spent overseas. My draft classification is 5-A.

I am licensed in Tennessee and would prefer a location in East Tennessee, my birthplace being Knoxville. However, I am open to any location where the need is greatest. I appreciate your sincere interest,

Sincerely,

LW-2

(Address inquiries to Executive Secretary)

★

"With further reference to locations available for general practice in West Ten-



nessee I shall be happy to give you the information requested.

I was graduated from the College of Medicine, University of Tennessee, in September, 1950 and am now interning at the Jefferson Davis Hospital in Houston. I will finish September, 1951. I am licensed to practice in Tennessee.

I prefer a small town in West Tennessee of approximately three to ten thousand population."

Yours very truly,

LW-4

(Address inquiries to Executive Secretary)

## ANNOUNCEMENTS

### Coming Medical Meetings

October 3-5, **Nashville Postgraduate Medical Assembly**, Headquarters, Maxwell House, Nashville. (See Section on Programs and News of Medical Societies.)

November 12-17: **The Annual Postgraduate Course in Diseases of the Chest**, sponsored by the Council on Postgraduate Medical Education and the New York Chapter of the American College of Chest Physicians, will be presented at the Hotel New Yorker, New York City.

September 24-28: **Annual Postgraduate Course in Diseases of the Chest**, sponsored by the Illinois Chapter of the American College of Chest Physicians, St. Clair Hotel, Chicago.

September 10-13: U. S. and Canadian Chapters, **International College of Surgeons**, Palmer House, Chicago, Illinois. Our own Dr. Herbert Acuff is President of the International College of Surgeons. Other Tennesseans on the program will be Hon.

Estes Kefauver, United States Senator who will address the surgeons at the convocation service at the Chicago Civic Opera House. His subject, "The America of Tomorrow"; Dr. William M. Adams, Memphis, will read a paper on "The Relation of the Plastic Surgeon in the Rehabilitation of the Crippled Child"; Dr. Park Niceley, Knoxville, will discuss "Urological Symptoms Relieved by Postural Correction"; and Dr. Gould Andrews, Oak Ridge, will speak on "Therapeutic Uses of Radioisotopes."

October 22-27: **Second Annual Medical-Military Symposium**, U. S. Naval Hospital, Philadelphia. Sponsored by the Fourth Naval District for Medical Reserve Officers on the Armed Forces. Commodore Richard A. Kern, MC, USNR, will preside.

November 5-9: **American College of Surgeons**, San Francisco, headquarters, Fairmont Hotel. This meeting is the 37th annual Clinical Congress of the College.

September 26: **The Chattanooga-Hamilton County Clinical Congress** sponsored by the Chattanooga-Hamilton County Medical Society will be held Wednesday, September 26th at the Chattanooga Golf and Country Club. Three nationally known physicians will be on the program: Dr. T. G. Klumpp, New York City—"Some Aspects of Geriatrics"; Dr. Margaret Smith, Tulane University—"Convulsions in Children"; and Dr. Louis Krause, Professor of Medicine, University of Maryland—"Biblical References Pertaining to Medicine." There will also be some papers by Chattanooga physicians. All members of the Tennessee State Medical Association as well as the doctors from surrounding states are invited to spend the day as guests of the Society. (Thanks, Dr. Van Order, for this announcement.)



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# Journal of the Tennessee State Medical Association

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*This paper underlines statements made in the past in the Journal, that cancer control begins in the office of the family physician and not in the tumor clinic of a medical center.*

## THE IMPORTANCE OF HOARSENESS\*

W. G. KENNON, JR., M.D., Nashville, Tenn.

The purpose in presenting this paper is twofold: first, to bring to the attention of everyone engaged in the practice of medicine the importance of the symptom of hoarseness; second, to stimulate interest in the performance of the physical examination of the larynx. No long series of cases will be cited, no remarkable results of treatment will be described. The details and results of treatment of diseases having hoarseness as a symptom are well known and have been ably presented elsewhere. The neglect of this symptom by many physicians and its importance as a clue to diagnosis is such that it warrants emphasis.

Hoarseness is a huskiness or rasping quality of the voice. It is lower in pitch than is normal for the individual. It denotes an interference with the proper functioning of the larynx. This interference with laryngeal function may be systemic, extralaryngeal or local. Among the systemic or extralaryngeal causes of hoarseness are: pulmonary tuberculosis, neoplasms of the bronchi, esophagus, trachea or thyroid gland, mediastinal disease, allergy, blood dyscrasias, aneurysm of the aorta, cardiovascular disease, central nervous system disease and syphilis. Local disorders of the larynx causing hoarseness are: acute or chronic non-specific inflammation, benign and malignant neoplasms, ulceration, tuberculosis and syphilis.

It can be readily seen that the causes enumerated above cover a multitude of diseases, and that hoarseness should be re-

garded with respect and interest for this reason if for no other. However, all of the systemic disorders which have hoarseness as a part of their symptom complex have other signs, symptoms and laboratory findings which can be utilized in making a diagnosis. In such diseases hoarseness is not always of prime importance. In most of the intrinsic diseases of the larynx, hoarseness is the only early symptom, and is, therefore, of extreme importance in leading the physician to the site of the disease. Consequently, it is among these so-called local causes of hoarseness that are found the diseases which make this symptom of utmost importance.

The local causes of a hoarse voice are listed above. The acute inflammations are rarely serious and will not be considered here. Chronic inflammatory diseases are problems as far as treatment is concerned, but usually do not affect the general health of the patient. Tuberculosis of the larynx accompanies pulmonary tuberculosis, and the diagnosis has generally been made prior to the onset of laryngeal symptoms. Syphilis of the larynx in these enlightened times is rare, and will not be included in the scope of this article. Hoarseness is of first and vital importance in the early diagnosis and effective treatment of malignant neoplasms of the larynx.

Ninety-five per cent of all laryngeal malignancies are squamous cell carcinomas.<sup>6</sup> Since the epithelium covering the vocal cords is of the squamous celled type, this means that the large majority of these tumors begin in that portion of the larynx which is concerned with phonation. As a

\*Read before the annual meeting of the Tennessee State Medical Association, April 10-11, 1951, Nashville, Tenn.



result of this fact hoarseness is an early symptom. Jackson and Jackson<sup>3</sup> report 82 per cent of their cases of early carcinoma resulted in five year cures. Their over-all series of early and late cases resulted in a 64 per cent five year cure rate. Clerf<sup>1</sup> as well as other investigators confirm these results. On the other hand, over-all statistics show that 90 per cent of patients with laryngeal carcinoma die of the disease.<sup>3</sup> There is quite a discrepancy in these figures. Thus 82 per cent of the early cases can be cured, yet 90 per cent of all cases of carcinoma of the larynx die of the disease. Why? The earliest and most common symptom of the laryngeal cancer is hoarseness. Therefore, nearly all of these victims should be discovered and treated in the early stages. Results quoted above would indicate that the great majority of patients with laryngeal malignancies are diagnosed and treated in the late stages of the disease if at all. The obvious conclusion would seem to be that the symptom of hoarseness is being ignored.

Why is it that a symptom of such great potential importance is so frequently neglected? The patient with a lump in the breast may be unaware of its existence for weeks or months. The individual with rectal bleeding may be reluctant to seek medical advice because of modesty. Yet, once the physician is consulted regarding a tumor of the breast, bleeding from the rectum, or any symptom which in any way might indicate the existence of a malignant neoplasm, he pursues it to the utmost of his ability. Breasts are palpated, biopsies are performed, fingers are inserted into rectums and followed up with short and long speculums. Barium enemas, barium swallows, gastrointestinal series, gastroscopies, Papanicolaou cell examinations, electroencephalograms, ventriculograms are diligently carried out when indicated. *But what of the larynx?* Hoarseness is a symptom and sign easily observed. It cannot be hidden from the patient himself, his family, friends, strangers or his physician. The larynx, then, should receive even more prompt attention than the breast, rectum or stomach. It does not receive this deserved attention, because hoarseness is neither

painful nor particularly incapacitating. The patient usually associates its onset with an upper respiratory infection, and thus makes his own diagnosis of laryngitis. The physician does his bit by accepting the patient's story at face value, and proceeds to initiate his favorite treatment for laryngitis. He rarely takes the time to examine the larynx, in fact he may not have the equipment required for such an examination. This same physician would never make the diagnosis of pneumonia without using a stethoscope, nor would he rule out appendicitis without palpating the abdomen and doing a leukocyte count. Still he is willing to say, in effect, "You do not have cancer of the larynx," without so much as a visual examination of the organ involved.

Examination of the larynx should be a part of the examination of any patient who complains of hoarseness, difficulty in breathing or swallowing, or fullness of the throat. It does not require expensive equipment. (Fig. 1.) It does, like any



FIG. 1

other skill require a certain amount of practice before one becomes adept at it. (Fig. 2 and 3.) Certainly every patient with hoarseness of more than three weeks duration should have an examination of the larynx with a mirror. If the vocal cords appear mildly inflamed, and improve in appearance at subsequent examinations, the physician can assure himself that he is dealing with a benign inflammatory process. If, on the other hand, the examiner cannot see the larynx in its entirety due to an overhanging epiglottis, or the laryngeal struc-



FIG. 2



FIG. 3

tures exhibit ulceration or evidence of a new growth, the patient should be thoroughly examined through the laryngoscope and a biopsy taken if indicated. This same plan of examination is routinely followed for other organs and systems, and it should be done in the case of the larynx.

#### Cases

Case 1. T. B., a 59-year-old white man, was first seen in November 1948. He had been hoarse for 4 years, but his physician had never looked at the larynx. He began to have difficulty in breathing several weeks prior to examination. Examination of the larynx by mirror showed a large neoplasm involving both cords. A preliminary tracheotomy was done at Vanderbilt Uni-

versity Hospital because of respiratory embarrassment. Biopsy was done the following day through the laryngoscope. Pathological report was squamous cell carcinoma of a well-differentiated type. The patient refused to have a laryngectomy and was treated with a maximum dose of deep X-ray. He is alive and in good health today with no evidence of extension or continued growth of his tumor. His voice is husky but his airway through the larynx is adequate.

Case 2. P. B., a 59-year-old white man, was first seen in December 1949. He had been hoarse for 3 weeks, and associated the onset of his hoarseness with an upper respiratory infection. A pamphlet distributed by the American Cancer Society prompted him to come in for examination. Laryngoscopy by mirror showed hyperemia of the right cord with a small area of thickening. Biopsy through the laryngoscope revealed squamous cell carcinoma. A laryngofissure operation was done at Vanderbilt University Hospital and the entire vocal cord was removed. This patient is alive and well today, with no evidence of recurrence. His voice is hoarse but adequate.

Case 3. N. P., a 58-year old white man, was seen in November 1950, with a 2-month history of hoarseness. His physician had treated him with penicillin, chloromycetin and terramycin without any improvement. Examination revealed hyperemic, thickened vocal cords. The appearance of the larynx suggested an inflammatory process, and the patient was advised to rest his voice and deprived of tobacco for several weeks. There was no improvement on this regime and so the right vocal cord was stripped at Vanderbilt University Hospital and submitted to pathological examination. The diagnosis was tuberculosis. X-ray films of the chest have failed to reveal pulmonary tuberculosis, but the patient has been under treatment with streptomycin and his vocal cords now approximate the normal in appearance.

Case 4. J. S., 40-year-old white man, had been hoarse for 2 months when he was seen in January 1951. He had been treated for laryngitis with penicillin and with nasal packs and irrigations. Laryngoscopy with the mirror showed normal vocal cords, but an overhanging epiglottis prevented examination of the anterior one-third of the cords. A direct laryngoscopy revealed the presence of a small tumor on the anterior end of the left vocal cord. This was removed through the laryngoscope with a prompt return of the patient's normal voice. Biopsy report was benign polyp of the vocal cord.

#### Summary

(1) Hoarseness is important because it is sometimes an early sign of carcinoma of the larynx.

(2) Carcinoma of the larynx is curable in the early stages.

(3) Patient and physician sometimes ignore this symptom.



(4) Examination of the larynx should be included in the physical examination.

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### Discussion

N. S. SHOFNER, M.D., Nashville, Tenn. Mr. President: I am going to permit myself a little boasting in regard to Doctor Kennon's paper which I consider of great importance. I claim credit for instigating Doctor Kennon to write this paper. About two years ago a man 61 years of age came

to see me complaining of hoarseness and dyspnoea and strangling. He had been hoarse for two years and dyspnoeic for 6 months. He had been treated for laryngitis but had never had a laryngoscopic examination. I referred him to Doctor Kennon who found a carcinoma of the larynx involving both vocal cords and performed a total laryngectomy. The cervical lymph glands were involved and the man lived only a few months. This was such a glaring example of the consequences of assuming that the hoarseness was due to laryngitis and thereby neglecting a laryngeal examination that I urged Doctor Kennon to write a paper on this subject, because I believed this was not a very unusual case.

I am delighted that he has written this paper in such a clear and forceful manner. Most doctors will not wish to do the laryngeal examinations themselves but there are plenty of otolaryngologists available and in this day of increased effort to detect cancer early we must all remember that while simple laryngitis is a frequent and relatively harmless and even somewhat amusing affliction, it always clears up within a matter of days or weeks. If the hoarseness persists more than a few weeks it must be regarded with suspicion and a laryngeal examination must be done. This is the real point of this paper and I think Doctor Kennon has done a real service to this Society in bringing it to our attention.

### Granuloma Venereum of the Cervix and Vulva.

Hester, L. L., Jr., *Am. J. Obst. & Gynec.*, 62: 312, 1951.

The diagnosis of granuloma venereum may be made in three ways: by stained smears; by biopsy; and by skin reaction of the patient to an intradermal inoculation of Donovan body antigen. Dienst, Greenblatt, and Chen state that the simplest and most reliable test for diagnosis is a smear stained by Wright's stain. Granuloma venereum is a more descriptive name for this disease.

Streptomycin is effective in the treatment of granuloma venereum. Plastic surgery of the external genitals may now be performed successfully following streptomycin therapy. Fetal mortality and maternal morbidity will be reduced in pregnancy complicated by granuloma venereum if aureomycin, chloromycetin, or streptomycin therapy is given during the prenatal period. Now after streptomycin therapy and with complete healing, plastic operations are performed with relative impunity.

(Abstracted by Hamilton V. Gayden, M.D., Nashville, Tennessee.)

*The writer, having been the first to describe the origin of tumors of the pleura and peritoneum, is in a position to speak authoritatively upon this subject.*

## MESOTHELIOMAS OF THE PLEURA AND PERITONEUM\*

ARTHUR PURDY STOUT, M.D.,† New York

One of the important tasks which devolves upon the pathologist who interests himself in the problems of the clinician, roentgenologist and therapist is the recognition of the various kinds of tumors which can arise in different regions, label them correctly and observe their biological behavior, so that when one of them is encountered he will be prepared to discuss diagnosis and prognosis from the biological point of view, a knowledge essential for intelligent therapy.

These facts can be illustrated by considering the tumors which arise primarily from the lining of the pleura and peritoneum. For a great many years it has been recognized that a malignant tumor occasionally arises in, and diffusely involves the pleura and peritoneum spreading widely over their surfaces either in the form of a thick plaque or pannus, or else as multiple and usually anastomosing nodules. Such a growth is spectacular not only because of this fact but also because it hardly ever either penetrates into underlying structures or metastasizes. This tumor histologically is characterized by the formation of tubes lined by cells which imitate the appearance of swollen serosal mesothelial cells such as may be found sometimes in various forms of serosal irritation. The resemblance of these tubular structures to cancerous glands inevitably leads to the error of designating some cases of the metastatic spread of carcinoma over serous surfaces by the name of primary mesothelioma. Indeed some observers (notably Willis) have expressed a doubt about the existence of primary mesothelioma of serous membranes, but the majority accept it as a rare form of tumor. These tubular malignant mesotheliomas of

diffuse spread are of little interest to the therapist because there is practically nothing he can do about effecting a cure. He has been interested, however, in the solitary tumors which grow in the pleura and peritoneum because a solitary tumor lends itself to surgical removal and is potentially curable. But he sought in vain for reliable information from pathologists concerning these tumors. However, pathologists were baffled by them and in the case of the pleural growths burdened them with ten or more different names some of the connoting benign and some malignant tumors of either fibrous or leiomyomatous nature.

In the Laboratory of Surgical Pathology at Columbia University we were just as baffled by these tumors as were others. Very fortunately, however, I have an associate in the laboratory through whose aid I have received illuminating information about other baffling tumor forms which have clarified the nature of these tumors. In 1939 Dr. Richard L. Moore did a left total pneumonectomy for a malignant tumor which lay in the left lower lobe with a broad pleural attachment. This tumor which was a malignant, spindle-cell neoplasm that formed connective tissue fibers was explanted in vitro and studied by Dr. Margaret R. Murray who found that the cells had all of the cultural characteristics of mesothelial cells.

We might have rejected this observation as an artefact, supposing as did Pappenheimer that the outgrowth came from the normal pleural mesothelium instead of the tumor cells, were it not for the following facts. (a) We knew that the explanted tissue was taken far from the pleura which could not have been included. (b) The cellular outgrowth consisted of neoplastic and not normal mesothelial cells. (c) It had been shown years before by Maximow that mesothelial cells could take on the functions

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†From the Laboratory of Surgical Pathology and the Laboratory for Cell Physiology, College of Physicians and Surgeons, Columbia University.



and appearance of fibroblasts. Dr. Murray and the writer were convinced that this solitary fibrous malignant tumor was a pleural mesothelioma and described it as such in 1942. This observation seemed important because it showed that fibrous tumors of serous membranes might be derived from mesothelial cells instead of from the connective tissue, blood vessels and smooth muscle elements of the subserous tissues.

As more and more of these tumors became available for study, evidence accumulated which lent credence to this viewpoint. It became evident that there were benign and malignant varieties of these tumors which had distinctive patterns of growth so that usually they could be recognized histologically and could be differentiated from all other fibrous growths in the body. When these features became definitely established and Murray's tissue culture observations received confirmation in another laboratory (Sano, Weiss, and Gault) two additional papers were published by the writer. The first, appearing in 1950, established the fact that a solitary benign fibrous mesothelioma could develop in the peritoneum. It seemed important to do this since there had been none reported from that serous membrane. The second, written in collaboration with a roentgenologist Himadi, was published this year, and described the important clinical, roentgenological and pathological features of four benign and four malignant solitary fibrous mesotheliomas of the pleura. It was shown that the benign variant grew into the pleural space or interlobar fissure and did not invade the lung or chest wall, while the malignant tumors are usually buried in the lung or chest wall with a broad attachment to the pleura, and although often grossly circumscribed, were microscopically infiltrating and behaved as truly malignant growths with a high recurrence and metastatic rate.

Cases of mesothelioma, fibrous or tubular, solitary or diffuse, benign or malignant have continued to accumulate in the laboratory of Surgical Pathology of Columbia University. The majority have been contributed through the kindness of friends in many parts of this continent so that at the time of writing 72 cases of mesothelioma have

been accumulated, 34 of the pleura and 38 of the peritoneum. Reference to the table will show that while similar histological types appear in connection with both serous membranes there is a very marked difference in the relative frequency with which the different variants have been found. In the first place the great majority of the pleural tumors are fibrous since only four of the thirty-four were tubular. By contrast, in the peritoneum 33 of the tumors were tubular and only five were fibrous. A very striking difference is found in the relative numbers of the malignant diffuse tubular mesotheliomas, the form commonly called mesothelioma or endothelioma in the older publications and textbooks. For while 24 are recorded for the peritoneum (18 diffuse and 6 solitary) there are only 3 in the pleura (2 diffuse and 1 solitary). The reason for these striking differences is quite beyond my imagination.

Table I

Mesothelioma of Pleura and Peritoneum  
Laboratory of Surgical Pathology, Columbia Univ.

	<i>Pleura</i>	<i>Peritoneum</i>
Solitary benign fibrous	17	4
Solitary malignant fibrous	2	1
Diffuse benign fibrous	2	0
Diffuse malignant fibrous	1	0
Solitary benign tubular	1	9
Solitary malignant tubular	1	6
Diffuse benign tubular	0	0
Diffuse malignant tubular	2	18
	—	—
	34	38
Fibrous pleural tumors		30
Fibrous peritoneal tumors		5
Benign pleural tumors		20
Benign peritoneal tumors		13
Tubular pleural tumors		4
Tubular peritoneal tumors		33
Malignant pleural tumors		14
Malignant peritoneal tumors		25

A statement should be made about the 9 cases called solitary benign tubular mesotheliomas. Eight of these are what Mason, Riopelle and Simard describe as mesotheliomas of the genital sphere, which means in close proximity to, or touching the peritoneum covering the uterus, tubes, round ligament, epididymis and vas deferens. There is no general agreement that these small tumors are in truth mesotheliomas; they have been called adenomatoid and

angiomatoid tumors and lymphangiomas among other names, but the writer is firmly of the opinion that they are in truth mesotheliomas, as Masson, Riopelle, and Simard first thought in 1942, and Evans independently concluded the following year.

It is quite beyond the scope of this brief presentation to describe in detail the salient features of each one of these various tumor types. What seems important to emphasize at this time is the fact that the records of our laboratory include only 36 primary tumors of the pleura and all but two of them are considered to be mesotheliomas. We have found out how to distinguish the various sub-species and how to distinguish in most instances benign from malignant, sometimes by the appearance at operation and more often by the histological features. We have learned that simple excision will suffice to cure the solitary benign fibrous mesotheliomas. The solitary malignant fibrous mesotheliomas are so malignant that the most radical and extensive removal is called for if there is to be any hope of cure, because all of the cases treated by less drastic measures have failed to remove all of the neoplasm, and local recurrence, metastasis or both have resulted. There is still a great deal to be learned about some of the other variants of which only a case or two have been recorded. However, a beginning has been made because the different forms have been recognized, and when other similar cases come along we shall know what to call them and the collection can be continued and augmented until enough have been accumulated to permit us to predict how such cases will behave.

Anyone who has delved into the literature of the past concerning primary pleural and peritoneal tumors will agree that such information was practically inaccessible because it was impossible to collect any appreciable number of cases of most of the variants. I speak feelingly, for when Dr. Murray and I prepared for the publication of the case of malignant fibrous mesothelioma of the pleura which she recognized by using tissue culture, I read everything available on the subject of tumors of the pleura.

peritoneum and pericardium and was unable to form any clear cut conception about any except the rare diffuse tubular tumors. Everything which we have learned since, about tumors of serous membranes, has depended entirely upon the basic facts which Murray established by tissue culture, namely that mesothelial tumor cells can assume a spindle shape and form connective tissue fibers as well as grow in tubular formations and secrete hyaluronic acid as was already known. After that fact was established the complex and confusing features of the serous membrane tumors could be explained and it became possible to recognize and label them correctly. Although these technical details may not be of primary interest to the clinician, they are of importance to him indirectly for the ultimate diagnosis and classification of neoplasms is put into the charge of the pathologist, and if the pathologist is confused and uncertain, inevitably he may mislead and confuse the clinician and roentgenologist. Now that the variants of the tumor forms derived from the versatile mesothelial cell can be recognized for what they are and properly labelled, a more secure foundation exists upon which intelligent therapy for these tumors can be erected.

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*The author reviews the several clinical pictures which may be presented by infectious mononucleosis. He raises a question concerning other virus infections which may simulate this disease.*

## INFECTIOUS MONONUCLEOSIS OR A NEW ENTITY?\*

R. C. KIMBROUGH, JR., M.D., Knoxville, Tenn.

It was called "Idiopathic Adenitis" by N. Filatow when he described it in 1885. Emil Pfeiffer in 1889, recorded the classic signs of fever, enlargement of nodes, liver and spleen, with gradual recovery and excellent prognosis. Evans and Sprunt published an excellent description of the abnormal blood cells in 1920. Paul and Bunnell<sup>1</sup> contributed a diagnostic test for infectious mononucleosis the heterophile antibody agglutination test. Longcope<sup>2</sup> in 1922 used the terms infectious mononucleosis and glandular fever interchangeably, but it was not until 1925 that the two were considered one and the same.

The incidence of this disease is very difficult to estimate since it probably occurs more often than it is recognized being passed up as common cold or "flu," or psychoneurosis with asthenia, if no blood counts or agglutinations are done. It appears that the disease has a world-wide distribution; it is considered extremely rare in the negro. The disease affects males more than females in a ratio of approximately three to two. Sturgis<sup>3</sup> estimates that eighty per cent of all cases are in children under thirteen. The usual age being fifteen and twenty years. Ages have varied from seven months to seventy years. Formerly, it was rare to find more than one case to a household though cases are found appearing in a household two to four weeks after a proven case existed.

The etiology of infectious mononucleosis is unknown but is generally attributed to a filterable virus, which has not been isolated. It maybe transmitted into the chorioallantoic membrane of the chick embryo, but not to rabbits, monkeys, white mice or guinea pigs.

### Symptoms

The symptoms and signs of this disease are protean. There are no set diagnostic criteria, and one must depend on clinical judgment and laboratory tests, particularly the white blood and differential counts, the reticuloendothelial hyperplasia and heterophile antibody agglutination. Subjective complaints may be constant dull headache, sore throat, general malaise, weakness, anorexia, diarrhea, exhaustion and neurological symptoms. Objectively, the patient may show enlargement of the cervical, axillary and occasionally the inguinal glands.

Infectious mononucleosis cases may be classified in several symptom-complex groups.

(1) Upper Respiratory Type. The patient complains of nasal stuffiness and discharge, mild sore throat, general malaise, muscle aching, mild to moderate fever, fatigue, loss of energy and mild anorexia. After a week or two he may also notice enlargement of the cervical lymph nodes. There may be enough pain and tenderness in this locality to warrant a complaint of stiff neck. The acute symptoms gradually subside after several days to weeks, but loss of energy, fatigue, and episodes of sore throat, enlargement of the cervical glands, and mild to moderate fever may recur periodically for months.

(2) Gastro-Intestinal Type. This is typified by nausea, vomiting, and diarrhea, with as many as twenty-five stools a day. These symptoms gradually abate, the patient being left with extreme fatigue, continuing for two to eight weeks.

(3) Symptoms Simulating Acute Appendicitis. The picture may start with initial nausea and epigastric pain gradually localizing in the right lower quadrant, with tenderness and involuntary rigidity. The blood count, however, does not fit the pic-

\*Read before the Tennessee State Medical Association, Nashville, April 10-11, 1951.

ture, in that they may be a leukopenia with relative lymphocytosis indicating infectious mononucleosis. Many patients have undergone appendectomies when their symptoms actually were due to this disease.

(4) Acute Febrile Type. With the occurrence of temperatures up to 104 or 105 degrees, plus general malaise, muscular aching and delirium, the syndrome resembles the rickettsial infections even to an occasional generalized maculo-papular rash. Differential diagnosis can be most difficult since the Paul-Bunnell test may not become positive for a week or ten days after the onset of the illness. At other times the disease may simulate typhoid fever, with sustained fever, a relatively slow pulse, leukopenia, diarrhea and severe headache.

(5) Simulating Acute Rheumatic Fever. General malaise, mild fever and joint symptoms prevail. In the occasional case, the latter recur over a period of months. If the patient happens to have had rheumatic fever previously and has acquired permanent electrocardiographic changes, the differential diagnosis is difficult.

(6) Infectious Hepatitis Syndrome. Jaundice may occur, accompanied by tenderness in the right upper quadrant, enlargement of the liver, the usual general malaise, muscular aching, fever, loss of energy, fatigue and anorexia. Iverson and Raaschow in 1948 reported a positive thymol turbidity test in 26 of 27 proven cases of infectious mononucleosis, using the Paul-Bunnell reaction as a criterion for diagnosis. Brown, Simms, White and Clifford<sup>1</sup> reported a series of 83 cases of infectious mononucleosis showing abnormal liver function, using the bromsulfalein, the cephalin-cholesterol flocculation and thymol turbidity tests. From these results it was reasonable to suggest that, possibly every patient with infectious mononucleosis would demonstrate abnormal liver function. The differentiation from infectious hepatitis, when jaundice is present, is not too difficult since increase in heterophile antibody titre is so uncommon in infectious hepatitis. In occasional cases, however, it is practically impossible to differentiate between the two.

(7) Neurological Type. The signs may resemble those of serous meningitis, optic

neuritis, oculomotor or facial paralysis, paralysis of the long thoracic nerve, poliomyelitis, Guillain-Barre's syndrome or convulsive states. Ricker, Blumberg, Peters, and Wederman<sup>2</sup> reported a series of cases with neurological involvement and a complete report of 2 fatal cases resembling a Guillain-Barre syndrome. They felt that in any febrile illness of this type infectious mononucleosis must be considered. Bernstein<sup>3</sup> pointed out that the neurological symptoms most frequently simulate lymphocytic meningitis. Though deaths from infectious mononucleosis are rare, most of them are of neurological nature. Dolgopol and Husson<sup>4</sup> reviewed the literature for twenty years prior to October 1949 finding 16 due to infectious mononucleosis, several being classed as neurological deaths, most of these due to respiratory failure. There were 5 deaths due to rupture of the spleen. Interesting, also, was the fact that 8 cases of ruptured spleen recovered following prompt surgerv. In one series of 20 cases showing neurologic symptoms, despite a markedly positive heterophile antibody agglutination in the blood serum, the tests were negative on the spinal fluid.

(8) Hemolytic Anemia Type. In 1949 there was reported a case of a twenty-two year old male with infectious mononucleosis who developed a typical hemolytic anemia and jaundice, but eventually recovered. In the same year appeared another case report of hemolytic anemia even more unusual since the patient was a negro. A case of acute hemolytic anemia in a seventeen year old negro was described in 1950. Thrombocytopenic purpura has been reported with platelets reduced to as low as 30,600. Frank hematuria has been reported in cases of infectious mononucleosis.

(9) Subclinical and Chronic Type. Undoubtedly, the most difficult cases, from a diagnostic as well as therapeutic standpoint, are those we must classify as subclinical and chronic. Isaacs recently reported a group of 53, out of 206 patients with infectious mononucleosis, whose symptoms had persisted from at least 3 months to 4 years. These symptoms included fatigue, exhaustion, aching of the legs, weakness, depression, slight temperature elevation, moder-



ate lymphadenopathy, low blood pressure, low blood sugar and often a low specific gravity of the urine, plus presence of infectious mononucleosis cells in the blood. There were more females than males in this group. Other diseases which had to be considered in the differential diagnosis were undulant fever, tuberculosis, Addison's disease, Hodgkin's disease, Rocky Mountain spotted fever, lymphosarcoma, hypothyroidism, menopausal syndrome, sub-acute bacterial endocarditis, neurasthenia and syphilis. The heterophile antibody agglutination usually ran no higher than a titre of 1:64. Many of the symptoms of these cases were most suggestive of Addison's disease, but in no case was there disturbance of the sodium, potassium or chloride metabolism. Frequently, the symptoms of the subclinical case are erroneously attributed to psychoneurosis, or just plain laziness.

### Diagnosis

Since fatalities were so rare in this disease, the pathological picture was rather ill-defined. Recently there has been an increasing number of reports of fatal cases with necropsy studies. The changes resemble those of known virus diseases, specifically, perivascular infiltrations with normal and abnormal lymphocytes. It is interesting that the bone marrow shows a virtual absence of lymphocytes, whereas, in vivo aspiration marrow studies have shown lymphocytes. Pneumonic exudates have been reported, as have myocardial infiltrations, to a point that electrocardiographic changes were present during life. Some have shown portal lymphoid collars in the liver, at times to a degree almost resembling leukemia. Practically all cases have shown evidence of a toxic hepatitis.

The usual diagnostic criteria set down have been reticulo-endothelial hyperplasia, presence of the abnormal lymphocytes or mononuclear cells in the blood smear, and a positive heterophile antibody agglutination. It must be pointed out, however, that many cases fail to show all of these at the same time. The heterophile antibody agglutination may not become positive for several weeks, and occasionally the lymphadenopathy is not peripheral and therefore

not demonstrable. Though the heterophile antibody agglutination test, or Paul-Bunnell test, has been considered one of the diagnostic criteria for this disease, it is known to be a nonspecific test and may be positive in other diseases. Many authors consider an agglutination to the dilution of 1:56 and above as positive evidence for diagnosis of the disease. Others, however, prefer that the test be positive in a dilution of 1:128 and above. Schultz<sup>9</sup> has used the test in other diseases. He reports a titre of 1:56 or higher in 113 of 117 cases of infectious mononucleosis, in 16 of 18 cases of Hodgkin's disease, in 2 of 10 cases of agranulocytosis, 6 of 8 cases of monocytic leukemia, and 24 of 45 cases of myelogenous leukemia and 9 of 23 cases of sarcoma, other than Hodgkin's disease, and 27 of 55 cases of tuberculosis. There were no positive tests in 8 tests on 2 cases of lymphatic leukemia. This report certainly disposes of the heterophile antibody agglutination test as a single diagnostic criterion. On the other hand, coupled with the significant blood findings, it leads to two valuable considerations: (1) Since nearly one hundred per cent positive reactions were obtained in relatively long series, as compared with other diseases, the test can be regarded as strong evidence of infectious mononucleosis. (2) Since lymphatic leukemia showed no positives, the test may be used as a sorely needed differential between the two. Bernstein describes an occasional increased titre in scarlet fever, rubella and filariasis.

Davidson and associates have presented a differential test for the false positive heterophile antibody agglutination test. They consider its use indicated (a) if the Paul-Bunnell test shows a titre of 1:112 or less in patients who exhibit characteristic symptoms of infectious mononucleosis; (b) if the titre is 1:224 or higher in patients without these symptoms; (c) when there is a history of recent injection with horse serum, or serum disease. The test uses guinea pig kidney antigen. They concluded that only in infectious mononucleosis do antisheep agglutinins remain after absorption with guinea pig kidney antigen.

Treatment

There is no specific treatment available at present for this disease; consequently, it must be dealt with symptomatically and sympathetically. Many of the respiratory symptoms can be alleviated by the antibiotics. The patient suffering from the gastrointestinal type of the disease may be relieved with usual symptomatic therapy.

In contrast to some of the reports in the literature, the author has felt that aureomycin and occasionally terramycin have helped to bring about symptomatic relief, consistently enough to warrant its use regularly. The accompanying chart shows the number of cases treated with aureomycin, with temporary improvement in the majority. Those who have not responded to aureomycin have been treated with terramycin with some improvement. Seifert<sup>10</sup> and associates have recently reported a well controlled study of 47 patients with infectious mononucleosis in which the therapeutic value of aureomycin was evaluated in comparison to placebo therapy. They concluded that there was no difference in the course of the patients treated with aureomycin, (2 Gm. for 4 days), and those treated with a placebo. On the other hand, Carter and Sydensticker<sup>11</sup> reported 9 cases which did show definite evidence of improvement on aureomycin.

The low grade, chronic and sub-clinical cases, most difficult to treat, do respond in the majority of instances to aureomycin. The incidence of improvement is increased by giving interval and bedtime feedings, protein hydrolysates, vitamin supplements and adrenal cortex, preferably Lipo-Adrenal Cortex, parenterally, or Cortalex tablets.

Pseudo-infectious Mononucleosis

Many cases diagnosed infectious mononucleosis at first were questioned later. We cannot classify these cases as typical infectious mononucleosis and may well be dealing with a different but similar virus infection which has become prevalent in the past three years. Certainly, this syndrome is occurring much more frequently than infectious mononucleosis and actually is almost epidemic throughout the United States. Though the symptoms resemble those of

infectious mononucleosis, there are certain features which tend to conflict with this diagnosis. In the first place the disease affects all age groups and has been observed in patients as old as eighty-three years. It is no more prevalent in the young than in the middle aged and aged. Though multiple cases of infectious mononucleosis rarely occur in the same family, this syndrome is commonly affecting the entire family.

Though there is early a leukopenia and a lymphocytosis, the abnormal mononuclear cells are not common and, infrequently, the initial white blood count may be elevated with an increase in the polymorphonuclear cells, changing to a leukopenia and lymphocytosis within three to five days. Also, the heterophile antibody test may be strongly positive through dilutions of 1:1280; yet when the confirmation test with guinea pig kidney antigen is carried out, it is consistently negative which rules out infectious mononucleosis. (Table I.) Because of these findings the Paul-Bunnell test has been done on fresh specimens of the blood and after refrigeration one to three days. Refrigeration did not alter the results of the tests and normal bloods were negative. Some seventy-five strongly positive heterophile antibody agglutinations were negative after guinea pig antigen absorption.

Table I

Pseudo-infectious Mononucleosis—Laboratory Data	
Total cases diagnosed	250
Heterophile antibody agglutination—Positive	
1:80 dilution and above	232
Guinea pig kidney antigen absorption test	80
Cases positive heterophile after absorption test	8

Recurrences and relapses are much more frequent in this new syndrome than in infectious mononucleosis of the past and sub-clinical and chronic cases are more common. As Table II indicates, this syndrome is certainly not uncommon and actually has by now almost reached epidemic stages. Since the sub-clinical and chronic cases so often have as their main symptom only asthenia and ease of fatigue, the diagnosis is not made. Because the criteria for infectious mononucleosis cannot be satisfied in the majority of these patients it is felt that we are dealing with a syndrome which is much like infectious mononucleosis, and is most



Table II

Pseudo-infectious Mononucleosis—Clinical Picture  
Total Cases diagnosed . . . . . 250  
Symptoms and signs in order of frequency:

1. Pathological ease of fatigue, asthenia and weakness.
2. General malaise.
3. Headache.
4. Fever.
5. Enlargement and tenderness of lymph nodes. Sore and stiff neck.
6. Sore throat.
7. Enlarged tender spleen.
8. Cough.
9. Swollen sore eyelids.
10. Anorexia and diarrhea.
11. Skin rash.
12. Enlarged tender liver.
13. Severe neurological signs, jaundice, hemolytic anemia, etc.

likely due to virus, in view of the leukopenia and lymphocytosis. The similarity includes lymphadenopathy, splenomegaly, possible involvement of the nervous system in the form of lymphocytic meningitis and meningoencephalitis. In several cases the usual symptoms of upper respiratory tract involvement, low grade fever, general malaise, weakness, anorexia, ease of fatigue disappeared on treatment with aureomycin, only to have the patient, some seven to ten days later, develop an encephalitis or meningoencephalitis. The one symptom that is practically constant in all cases is the pathological fatigue, lack of ambition, energy and depression. Since many patients actually gain weight, have a good appetite and look well, they are diagnosed as having asthenia or psychoneurosis and may continue with these symptoms for months or even years. Rather than diagnosing infectious mononucleosis it is preferable to call them *pseudo-infectious mononucleosis* or a virus infection of unknown etiology. Goldthwait and Elliot<sup>13</sup> recently emphasized the non-specificity of the criteria for diagnosis and that only when more is known of the etiological agent and the agent-host relationship will infectious mononucleosis become a well defined entity. The transient nature of the hemotological findings, however typical, and the ephemeral status of the interpretation of the positive heterophile antibody agglutination test, however reassuring, still cannot alone make a diagnosis of

infectious mononucleosis or pseudo-infectious mononucleosis for the practitioner. So, along with the laboratory findings, the history and physical findings are essential to be mixed well with ample sound clinical judgment.

### Discussion

As dramatic stars are superseded by others, so must syphilis bow to infectious mononucleosis and virus infections of unknown etiology as imitators of greater virtuosity. Their repertory include roles from the common colds to severe neurologic symptoms. They portray liver damage and infectious hepatitis. Originally, they were thought to be mild and innocuous, but lately they have been recognized as diseases of severe morbidity and occasional mortality. The etiological agents are thought to be viruses, though their identities are unknown.

No specific treatment has come into general use and for this reason the author has treated the majority of his cases of pseudo-infectious mononucleosis with aureomycin and terramycin. (Table III.) Although the results have been gratifying, at no time has it been possible to say that the individual is cured. One patient was given 25 grams of aureomycin and three weeks after the drug was discontinued there was a recurrence of symptoms, which again responded to aureomycin. The usual dosage has been 500 mg. every six hours for eight doses, then 250 mg. four times a day for sixteen doses, to a total of 8 grams. The disease behaves like malaria in that it responds to treatment initially, then recurs. However, these re-

Table III

Pseudo-infectious Mononucleosis—Treatment  
Response

		Number	Good	Fair	Poor
Total Cases diagnosed	250				
Treated only symptomatically	65	20	23	22	
Treated with Aureomycin	175	124	34	14	
Treated with Terramycin	10	9	1		
Treated with Chloromycetin	14	12	2		
Relapses treated with Aureomycin:					
1 to 3 relapses	88	64	20	4	
3 or more relapses	42	21	13	8	

currences come at longer intervals and eventually disappear. This, of course, makes it difficult to evaluate the effect of any drug because of the uncertain duration and unpredictable recurrence.

The purpose of this discussion is to call attention to a syndrome which is widespread and epidemic, which is not typical infectious mononucleosis but is a *pseudo-infectious mononucleosis* or virus type of infection, and must be considered in the differential diagnosis of what has been so often termed "flu." The frequency of the sub-clinical type and the chronic type have economic significance in absenteeism since general malaise and reduced energy do not always demand medical advice. Moreover, if the victims of this disease are pushed back into work too soon, they are more likely to develop the chronic picture, whereas if the initial management is wise, the long convalescence may be prevented. Certainly, test treatment with aureomycin, or in some cases terramycin, is unwarranted. Unless one has had the disease it may be difficult to understand just what a patient means when he says, "Doc, I am sick, and I ain't sick. My appetite is good and I have gained weight, but I got no energy or pep, can't get up in the morning, can't get anything done, and worst of all, I don't seem to give a hoot."

### Summary

1. The literature on infectious mononucleosis has been reviewed as to early descriptions, etiology, clinical and laboratory findings, pathology, treatment and prognosis.

2. Comparison of this disease with pseudo-infectious mononucleosis has been discussed and various types have been listed. Two hundred and fifty cases have been so diagnosed. Treatment with aureomycin has been considered effective. Recurrences have been common but usually respond to a repetition of aureomycin therapy. Those not responding to aureomycin did to terramycin.

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DISCUSSION—DR. EDGAR JONES (Nashville): I certainly have nothing to add to the clinical manifestations which have been mentioned by Doctor Kimbrough. He has certainly covered these thoroughly. I am impressed with his report of the finding of what may be mononucleosis in so many people in the elderly age groups. I am old-fashioned enough to still feel that infectious mononucleosis we see is largely, if not entirely, confined to young people. We have the usual impression that we see it more frequently in medical students, house officers, technicians, etc., who work in and near the hospital. Since what Doctor Kimbrough terms pseudo-infectious mononucleosis may be largely dependent on laboratory aids, I think it is worth mentioning a recent report along this line. In the August 1950 issue of the *Journal of Laboratory and Clinical Medicine*, there is a report from the University of Michigan to indicate that considerable variation in heterophile titers may be observed on the same sera when cells from different sheep are used. Observations were made of some 20 odd sera tested against cells from 40 different sheep and wide variations were found depending on which sheep cells happened to be used. The authors suggest that this problem be handled by saving all sera to be tested in a given individual and testing them against the same batch of sheep cells. There is apparently a little variation from time to time in the agglutination ability of cells from the same sheep, but this is not at all of the magnitude of variation as seen from one animal to another. I feel that these recent observations would certainly mean that



a heterophile titer in Nashville would not be expected to be the same as one in Knoxville unless cells from the same sheep were used. This very likely has a lot to do with what are regarded as significant heterophile titer levels in different parts of the country.

There is another point from the laboratory standpoint which I would like to emphasize and that is that the majority of these people have low white counts at the time of admission. At times

there is a feeling among certain people that a leucocytosis is expected, but this is rarely the case. A number of years ago I made observations on patients with this disease at the University of Rochester and found that the white counts at the time of admission averaged about 5,000 with extremes of from 3 to 15,000. Usually in the second week or so of the disease the white count rises but a leucopenia is often or perhaps even usually found, at the onset.

**Conservative Management of Third Trimester Bleeding. Overstreet, E. W., and Traut, H. F., California Med., 74:8, 1951.**

Fear of the occasional massive hemorrhage produced by placenta previa has led, heretofore, to employment of immediate, active therapeutic measures whenever a patient near term has vaginal bleeding of any considerable degree. Unfortunately, this attitude toward the problem has produced disappointing results in two general ways:

1. In the presence of placenta previa, there has been with this method of management a maternal mortality rate of 5 to 10% and a fetal mortality rate of 40 to 60 per cent.

2. In the absence of placenta previa, patients with third trimester bleeding due to other conditions have too often been subjected to unnecessary radical procedures, notably cesarean section.

The authors' policy of management for patients who have bleeding during the third trimester of pregnancy is as follows:

1. During pregnancy the patient is instructed to report any bleeding immediately by telephone, day or night.

2. Any patient who has such bleeding is hospitalized at once, transportation being preferably by ambulance, especially when the bleeding is profuse. No attempt at diagnosis should be made in the home by vaginal or rectal examinations. No manipulations designed to arrest blood loss, such as binders or vaginal packing, should be carried out in the home. The important thing to remember is that the bleeding will stop with bed rest.

3. The patient is observed at once on admission to the hospital, where she receives a general physical examination, including abdominal palpation, but no rectal or vaginal examination. She is placed flat in bed and very mild sedation is given if there is any tendency to restlessness.

4. Immediately upon entry blood is drawn for grouping and cross-matching, and this is carried out as soon as possible. Thereafter, a unit of blood is kept near by for immediate use. If no other advantage whatever accrued from the conservative observation regimen, this single one of gaining time for the obtaining of blood for transfusion would alone justify the method; its importance cannot be overestimated.

5. Should the patient have a degree of anemia or shock on admission, blood transfusion is started as soon as it is available.

6. Practically continuous observation of the patient is maintained so long as active bleeding con-

tinues—usually not more than a matter of a few hours.

7. After cessation of bleeding, other diagnostic procedures, such as X-ray placentography, may be undertaken—except for methods involving rectal or vaginal manipulation.

8. Observation and complete rest are maintained for a minimum of one day, and at least three days should elapse if the clinical picture at all suggests placenta previa.

9. The elective termination of observation after one to three days will depend upon general factors. For example, a patient with a clinical picture highly suggestive of placenta previa with bleeding at the thirty-fourth week of pregnancy and a correspondingly small fetus will be kept on bed rest under observation, if possible, until the fetus reaches a larger size. No specific diagnostic procedure which might necessitate delivery will be carried out until the chances for fetal survival are satisfactory. On the other hand, a patient with a history of cervicitis earlier in pregnancy, admitted because of only slight bleeding in the third trimester, might very well be permitted ambulation in the hospital after a day or two of bed rest; absence of any further bleeding might then indicate simple sterile speculum examination to visualize the cervical bleeding point and treat it locally; the patient might then be discharged to her home.

10. In all cases in which there is even a remote suspicion of placenta previa, sterile vaginal examination to rule it out is performed before discharge is considered. It is always performed with "double set-up" in the operating room, with cross-matched blood present and preparations completed for the performance of cesarean section should it become necessary.

11. Further management of the case will, of course, depend upon the findings at sterile vaginal examination and upon the entire clinical situation.

The conservative observation regimen for the management of third trimester bleeding has been employed in the University of California Hospital since 1943. During the seven years 1943-49, inclusive, 99 patients, 38 primiparas and 61 multiparas, were admitted to the hospital on this indication alone, without regard to whether or not any abdominal pain was present. The absence of any material mortality in this series and a gross fetal mortality of only 8.9% speak well for the conservative observation policy by which these patients were managed. (Abstracted by Milton Smith Lewis, M.D., Nashville, Tenn.)

*Newer technics permit more extensive, though relatively safe, surgery in the hope of improving the gloomy outlook in carcinoma of the stomach.*

## TOTAL GASTRECTOMY

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### History

"Total gastrectomy" implies the removal of the entire stomach, including the pyloric and cardiac sphincters, and the anastomosis of the esophagus to either the jejunum or duodenum.<sup>1</sup> The first successful total gastrectomy was performed in 1897 by Carl Schlatter of Switzerland.<sup>2</sup> His patient, a white female, 56 years of age, survived operation one year and 53 days and died of recurrent carcinoma. The following year Brigham and MacDonald of this country successfully performed total gastrectomies.<sup>3,4</sup> These surgeons performed esophago-duodenostomies utilizing Murphy buttons. Schlatter anastomosed the esophagus to the jejunum. Numerous cases have been reported since then, but the operation is still infrequently performed today. The operative mortality in the early cases was extremely high. In 1929 Finney and Rienehoff reported 36 deaths in 67 cases, a 53.8 per cent mortality.<sup>5</sup> They found a 67 per cent mortality when the duodenum was employed for anastomosis to the esophagus as compared with 50 per cent mortality when the jejunum was used. In 1947 Longmire reported 20 cases with 2 deaths, a 10 per cent mortality.<sup>6</sup> In 1949 Lahey reported 67 cases with a mortality of 13.6 per cent, and in 1950 he reported 3 deaths in 36 cases, a mortality rate of 8.3 per cent.<sup>7,8</sup> One of Lahey's patients has lived more than 12 years following operation. The 3 year survival rate in his series is 21 per cent.

### Indications for Total Gastrectomy

Pack feels that there is only one indication for total gastrectomy; namely, a malignant tumor of the stomach which cannot be safely removed by partial gastrectomy.<sup>1</sup> Longmire and Lahey, however, have recent-

ly advanced the idea that total gastrectomies should be performed for all operable malignancies of the stomach.<sup>6,8</sup> These authors feel that it is just as rational to perform a total gastrectomy for a small carcinoma of the stomach as it is to perform a radical mastectomy or an abdominoperineal resection for a malignant tumor of the breast or rectum.

### Technical Considerations

Until recent years all total gastrectomies were performed by the abdominal approach. This method is preferable for cases in which the cardia is not involved. When the lesion involves the cardia it may be quite difficult for the surgeon to obtain a sufficient length of esophagus for adequate excision and anastomosis. When the vagus nerves are sectioned two or three inches of esophagus may easily be pulled below the diaphragm. Frequently a carcinoma arising in the cardia may infiltrate upward within the submucosa of the esophagus for a distance of several centimeters. For this reason it is recommended that a portion of the lower esophagus be removed in questionable cases of this type. This can best be accomplished by a combined thoraco-abdominal approach as recommended by Garlock, Kremen, and others.<sup>10,11</sup> The thorax should not be opened until a careful abdominal exploration has been carried out to determine whether the entire extent of the tumor growth can safely be removed, a decision which is often difficult to make. If metastases are found in the liver, peritoneum, or root of the mesentery, a total gastrectomy is contraindicated and the thorax should not be opened. The morbidity and mortality rates do not justify the performance of total gastrectomy for palliative purposes only.<sup>1</sup> Our first case which is discussed in this paper and which has previously been reported elsewhere, was performed by a combined abdominothoracic approach.<sup>12</sup> The

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second and third cases herein reported were performed by the abdominal approach.

### Nutritional Problems

Certain nutritional problems arise in patients who survive this operation.<sup>9</sup> Most patients have good appetites and gain some weight after operation. Substernal pain and gaseous distention following meals are common complaints. Patients should be instructed to eat small amounts at frequent intervals. Solid food substances should either be ground up or masticated thoroughly. The "dumping syndrome" can usually be prevented if no fluid is taken with meals. The administration of antispasmodics and antacids often relieves postprandial discomfort. The jejunal loop which has been joined to the esophagus frequently becomes dilated and serves as a reservoir for food so that four or five meals daily are sufficient. Fat absorption is slightly impaired and mild steatorrhea results if the diet contains much fat. In most cases there are no significant disturbances of biliary, pancreatic, or intestinal functions. Patients surviving longer than two years frequently develop pernicious anemia. Iron deficiency anemia may also occur.

*Case 1.* W. M., a negro male, 67 years of age, was admitted to the John Gaston Hospital, December 16, 1949, complaining of hematemesis. He had also noticed progressive weakness, melena, loss of weight and epigastric pain for approximately one year. Roentgen ray examination revealed a large ulcerating carcinoma high on the lesser curvature of the stomach. After several transfusions of whole blood a total gastrectomy was performed under endotracheal anesthesia through a combined thoraco-abdominal approach.<sup>12</sup> A large carcinoma extended upward to within 5 cm. of the esophago-gastric junction and involved more than one half of the lesser curvature of the stomach. The abdomen was first explored through a left rectus incision. The resectability of the growth was determined and the incision extended through the interspace between the eighth and ninth ribs to the mid-axillary line. The diaphragm was divided from its costal attachment down to the esophageal hiatus. The entire stomach, including the pylorus, the cardia and the omentum, was removed. The esophagus was anastomosed to the jejunum employing two rows of interrupted sutures. An entero-enterostomy was also performed.

The immediate postoperative condition was fair. Nothing was allowed by mouth for 48 hours and during this time continuous Wangenstein suction siphonage was employed. Small quantities of wa-

ter and other liquids were given with caution. On the eighth day soft foods were well tolerated. He was discharged on the fourteenth day.

The patient was readmitted to the hospital April 24, 1950, three months after operation, complaining of dysphagia. A stricture at the esophago-jejunal anastomosis was discovered. After repeated antegrade dilatations he became able to swallow without difficulty. He now enjoys a regular diet, and eats four or five meals daily. He has gained a little weight and his only complaint is swelling of the feet and ankles which is due to a mild hypoproteinemia.

*Case 2.* J. W., a white male 45 years of age, was admitted to the John Gaston Hospital, February 10, 1950, with a chief complaint of epigastric pain of two years' duration. Roentgen ray examination three months previously had revealed an ulcer high on the lesser curvature of the stomach. The roentgenologist thought that the lesion was probably benign but only slight diminution in its size was apparent after three months of strict medical management. The general condition of the patient was good. Gastric acidity was slightly below normal.

Laparotomy was performed under continuous spinal anesthesia through a high left rectus incision. The ulcer was palpated as an area of firm induration about 6 cm. in diameter extending within 5 cm. of the cardia. Several lymph nodes, 0.5 to 1.5 cm. in diameter, were found in the gastrophatic omentum and around the cardia. We thought that the lesion was probably a carcinoma. In order to get well above the ulcer it was necessary to perform a total gastrectomy. The esophagus was exposed and mobilized without difficulty by removing the spleen, cutting the fibrous attachment between the diaphragm and left lobe of the liver, and dividing the vagus nerves. Esophago-jejuno-stomy and entero-enterostomy were performed.

The immediate postoperative condition was good. Continuous Wangenstein suction siphonage was employed for 48 hours at which time a gradually increasingly liquid diet was begun. On the eighth day soft foods were taken without difficulty. The patient left the hospital against our advice on the tenth postoperative day, although he was progressing nicely at that time. At the present time he has no complaints and is eating a regular diet three or four times daily. His appetite has been poor but he has gained 3 pounds since operation.

The ulcer was found to be benign, having a deep crater 2 cm. in diameter. There was reactive hyperplasia of the regional lymph nodes.

*Case 3.* B. W. C., a negro male 77 years of age, was admitted to the John Gaston Hospital, March 28, 1950, complaining of hematemesis and melena of two days' duration. Epigastric pain had been present for 18 months. Relief was usually obtained by the ingestion of alkalies. Severe anemia and hypoproteinemia were present. Roentgen ray examination was not entirely satisfactory due to the poor general condition of the patient and his inability to cooperate properly. On the basis of the

clinical history and the laboratory and roentgen findings a diagnosis of bleeding duodenal ulcer was made.

The patient was prepared for surgery with repeated transfusions of whole blood and a laparotomy was performed under endotracheal anesthesia through a high left rectus incision. There were a few adhesions about the pylorus, but no definite evidence of duodenal ulcer was found. An infiltrating carcinoma was discovered, however, on the lesser curvature near the cardia. The tumor was approximately 8 cm. in diameter and extended within 2 cm. of the esophagus. The growth was freely movable. Several enlarged lymph nodes were found in the gastrohepatic omentum. It was decided that total gastrectomy was feasible, but it seemed unwise to open the thorax because of the poor general condition of the patient. The operative procedure described in Case 2 was performed, and a similar postoperative feeding regime was employed. We were able to get above the gross extent of the neoplasm, but malignant cells were found microscopically in the submucosa of the esophagus at the level of excision.

The patient complained of gaseous distention of the abdomen and substernal pain after the ingestion of either liquids or soft solid foods for about three weeks. He was allowed to go home on the 26th postoperative day. At the present time he eats anything he desires and eats only three meals daily. His appetite is good. He is ambulatory and has gained eight pounds since operation. His only complaints are weakness of the legs and slight flatulence after meals.

### Summary

Total gastrectomy is indicated whenever a malignant tumor of the stomach is found which cannot be adequately removed by subtotal gastrectomy. It should rarely, if ever, be performed for known benign lesions and should not be attempted when it is obvious that only palliation can be offered. The high operative mortality rate of the early cases has decreased greatly in recent years. As a rule digestive functions are not seriously impaired but it is usually necessary for patients to eat small amounts of food at frequent intervals. Anemia and hypoproteinemia are common sequelae. Because pernicious anemia may develop following surgery it is important that periodic

examinations be carried out for at least 5 years.

Although total extirpation of the stomach can be performed from within the abdomen, in certain cases of malignancy of the cardia where there is definite or questionable extension into the lower esophagus it is recommended that a combined thoracic and abdominal incision be used.

Reports of three cases are given. These three patients have survived operation approximately 15 months, 14 months, and 12 months respectively at the time of this writing.

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## STAFF CONFERENCE

### DEPARTMENT OF PEDIATRICS, UNIVERSITY OF TENNESSEE, COLLEGE OF MEDICINE, MEMPHIS

#### A Case of Patent Ductus Arteriosus

DR. TOM MITCHELL: This case is one of congenital heart disease which has been successfully operated upon with marked clinical improvement. It is of peculiar interest in that it demonstrates the need for varied diagnostic procedures in order that a correct opinion as to the nature of the lesion may be reached. It also should impress us with the better outlook today for many of these patients than existed previous to the introduction of various surgical procedures now available for certain congenital heart malformations.

Dr. George Clayton will summarize the findings of the case for our present consideration.

DR. GEORGE CLAYTON: This child was brought to the clinic with the chief complaint of easy fatigability and inability to undertake normal physical exertion. The mother was told that the child had a heart murmur when it was 5 days old. The child developed very slowly, crawled at 14 months, walked at 18 months. The child refused to play with other children, and when she did became very fatigued. There had never been any cyanosis or clubbing. Appetite had always been poor. There had never been any serious illness, though the child had had colds and difficulty with feeding at 6 months. The family history was non-contributory.

Physical examination revealed a poorly nourished child without cyanosis. The temperature was 99.4 F. and the blood pressure was 100/45. On examination of the chest there was a loud, blowing, "machinery" murmur over the pulmonic area, transmitted to the back; a thrill was felt over the pulmonic area. The blood count revealed a moderate anemia. Arterial oxygen saturation study revealed an oxygen content of 15.6 volumes %, oxygen capacity of 16.9 volumes %, with a 91.2 % saturation. X-ray studies revealed only slight enlargement of the heart, with some prominence of the pulmonary conus and slightly accentuated bronchovascular markings.

The child was discharged and was readmitted later. At this time, the patient was operated upon and a patent ductus arteriosus was found and doubly ligated. The child had a rather stormy postoperative course, in that she had some laryngeal

obstruction and required laryngoscopy. This patient has been followed in the Children's Cardiac Clinic, and many of her presenting complaints have disappeared. Her appetite has improved and there has been considerable gain in weight.

DR. RAPHAEL PAUL: The average patent ductus usually affords no great diagnostic problem but this child is somewhat more interesting in that her symptoms prompted us to think of other associated cardiac conditions. The patient exhibited more dyspnea than we ordinarily see in patent ductus arteriosus and also showed a diminution in stature and delay in physical development. These symptoms particularly led us to investigate the possibility of some other cardiac anomalies associated with the patent ductus, in which the ductus was acting in a compensatory fashion. Such conditions do occur and was the basis on which Dr. Taussig first investigated the possibilities of developing an artificial ductus in the cyanotic child. When a patent ductus arteriosus is associated with a cyanotic malformation the patient fails to demonstrate the usual symptoms of the cyanotic group. It may exhibit no dyspnea, have a pretty good physical capacity or exercise tolerance and show little or no visible cyanosis. An arterial oxygen saturation study was done on this patient to rule out this possibility. In a tetralogy of Fallot, for example, associated with a patent ductus, the oxygen saturation of arterial blood never exceeds 89%. Consequently, we assume that if we had an oxygen saturation below this figure there might be a chance for a patent ductus to be acting in compensatory fashion.

From the standpoint of history, the average uncomplicated patent ductus sheds very little light on the underlying pathology. Most of these individuals are otherwise perfectly normal and usually are unaware of any abnormality except as revealed by physical examination. However, dyspnea can occur in the larger patent ducti, as well as diminution in stature and delay in physical development. The larger the ductus, the more one anticipates these symptoms. An unusual symptom in patent ductus is the development of hoarseness which may be a complication. The pulmonary artery may become almost aneurysmal in size, with

consequent compression of the recurrent laryngeal nerve as it swings around the aorta on the left side between the aorta and the pulmonary artery.

From the physical viewpoint, the typical ductus is a gratifying congenital cardiac anomaly to encounter, since diagnosis is ordinarily quite easy. It is one of two congenital anomalies that can be diagnosed purely by physical means (the other being is coarctation). The typical ductus will demonstrate on physical examination a continuous, or to and fro murmur, best heard in the second left interspace, fairly well localized, and not well transmitted except perhaps in the thin-chested individual. This murmur has, at times, been referred to as a machinery murmur, which is, of course, as good a descriptive term as any, provided we all use the term to mean the same thing. (Some clinicians refer to a machinery murmur as any loud rasping murmur. This is incorrect for the term is intended to describe a continuous character of the murmur.) The blood pressure is also of diagnostic aid. In the average ductus there is a wide pulse pressure and further widening after exercise. The systolic pressure may be quite normal, the diastolic low. Following exercise there is a normal increase in systolic pressure but a drop in diastolic, which at times may fall to zero. This is of some prognostic value in that we advise early surgery on such individuals.

The electrocardiogram is not diagnostic and may show either no axis deviation, or perhaps a left axis deviation. The X-ray, contrary to its great value in all the other congenital cardiac anomalies, is of little, or possibly no benefit in the patent ductus. The X-ray appearance may vary from a perfectly normal heart in both size and shape to one which is enlarged, with fullness of the pulmonary conus and an increase in bronchovascular markings. In the latter instance, the X-ray appearance is indistinguishable from that of auricular septal defects, Eisenmenger complex and a few other conditions. The X-ray study alone, in the absence of history or physical findings, is of no value.

Several conditions must be considered in the differential diagnosis. First and fore-

most is the *venous hum*, which is a relatively normal finding present in a large percentage of children. Routine examination of the child may not reveal the presence of a venous hum, but it can be produced by forcibly rotating the head toward the right or left side and listening with the stethoscope over the second interspace on the opposite side. This causes a stretching of the neck veins and will produce the venous hum, which is a roaring, continuous bruit. The simplest method of differentiating a venous hum from the murmur of a patent ductus arteriosus is by compression of the neck veins on the side of the murmur. The venous hum immediately disappears, whereas, the murmur of the ductus is unaffected. An *aortic insufficiency* associated with a mitral insufficiency can perhaps cause a little more difficulty in differential diagnosis in that there is a diastolic murmur from the aortic insufficiency and a systolic murmur from the mitral insufficiency; it is possible to confuse this with the continuous to and fro murmur of the patent ductus arteriosus. However, the murmur of the aortic insufficiency is heard high up at the base, and the systolic component created by the mitral insufficiency is heard low around the apex and is transmitted into the axilla. In a thin-chested person, with transmission of murmurs, it is thus quite possible to hear over the aortic area a murmur that may suggest a continuous murmur of patent ductus arteriosus. The murmur of an *auricular septal defect* sometimes enters into the differential diagnosis in that it may be a loud, roaring murmur high up along the left sternal border. However, it is always systolic in time and there is no diastolic component.

This brings up the matter of diagnosing a patent ductus arteriosus in the absence of a diastolic murmur. There is a rare individual with a patent ductus who has only a systolic murmur, and this can be diagnosed only with the help of the phonocardiograph. This is the extreme exception and, in the presence of a systolic murmur alone, patent ductus arteriosus ought never to be a primary diagnosis, although it is reasonable at times to include it in the differential diagnosis.



Now, as far as the treatment of patent ductus is concerned, you all know that the treatment is surgical. This is also a very gratifying variety of cardiac defect for the surgeon, since it is one of the few congenital cardiac malformations that can be completely cured by surgery. Almost all of the other surgical procedures afford relief of symptoms but do not correct the underlying pathology. The procedure consists in ligation of the ductus, with or without division. It is up to the surgeon whether he prefers to divide the ductus or not.

The matter of when to expose the individual to surgery is of some concern. Ordinarily, the ductus murmur is not well heard in early infancy; first of all because the pressure gradient between the greater and lesser circulation is not well established; the pressure difference is very slim and there may not be a great enough shunt to create a murmur. The ductus generally closes off in the normal infant in the first few days of life, although we have no way of telling, specifically, when it does close. Delayed closure of the ductus does occur, and consequently we give the patient every benefit of doubt rather than to expose a small infant to the hazards of surgery, despite the fact that the procedure is now relatively simple and carries a very low mortality rate. We generally do not operate upon these children until after the third or fourth year of age. By then we are well assured that the ductus will not close spontaneously.

DR. TOM MITCHELL: Thank you Dr. Paul. Any further discussion?

DR. JAMES HUGHES: I would like to ask Dr. Paul if there have not been cases reported by Dr. Taussig in which the ductus murmur suddenly appeared. It seems to me that this was presumed to be caused by a web across the ductus suddenly giving way? Am I correct on that?

DR. PAUL: That is true. We seldom see this, but it is a reasonable explanation for the rare case that behaves in this manner.

DR. MITCHELL: Will Dr. Olim tell us about the surgical procedure in this patient?

DR. C. B. OLIM: The left chest was entered through the second intercostal space.

The ductus arteriosus was located by palpating the point of maximum thrill. Following dissection, the ductus was found to be quite wide, measuring 9 mm. in diameter. It was shorter than usual, and only about 5 mm. in length when traction was used at either end. Temporary ligation of the ductus for five minutes completely obliterated the thrill; the intensity of the heart action was noticeably decreased at this time. No untoward effects accompanied temporary ligation and we were satisfied that the ductus was not compensating for a coarctation of the aorta above. Permanent ligation of the ductus was then carried out by the multiple suture ligation technique.

DR. ETTELDORF: I think it should be emphasized that this baby's somewhat stormy postoperative course was attributed to the intratracheal anesthesia which is used in such patients. We frequently find, therefore, that these patients do have respiratory embarrassment following surgery. One might get the erroneous impression from this case that the postoperative difficulty was due to the surgery per se.

DR. REILLY: Do you recommend operation eventually in all cases of patent ductus arteriosus?

DR. PAUL: Yes, unless, of course, the ductus is compensatory. I would especially encourage surgery to eliminate the possibility of subacute bacterial endocarditis, a common complication of patent ductus arteriosus, and also suggest that it be done relatively early in life, before irreversible cardiac damage ensues.

DR. MITCHELL: Isn't it generally considered that 4 to 5 years of age is the best time to operate upon the ductus?

DR. PAUL: Some clinics vary from 3 to 9 years, but 4 to 5 years is perhaps ideal.

DR. REILLY: What about the hazards of such an operation, and how difficult a procedure is it?

DR. PAUL: It is not as easy a procedure as it appears on diagrams, I assure you, but the operative mortality in the hands of a good surgeon is extremely low.

DR. JAMES HUGHES: Some surgeons have operated upon considerably over 100 cases without a fatality.

DR. MITCHELL: In untreated cases,

isn't the life expectancy 20 to 25 years?

DR. PAUL: Approximately that, on the basis of available statistics. However, we must remember that statistics in congenital heart disease will necessarily be altered, especially in the operative cyanotic malformations and also in patent ductus arteriosus, which carries a high risk of subacute bacterial endocarditis. With sulfonamides, penicillin, and other antibiotics fewer cases will die early and life expectancy will obviously increase.

DR. MITCHELL: Our time is up, and we will move on to the next case.

### A Case of Paroxysmal Tachycardia

DR. JAMES N. ETTELDORF: The case to be discussed next is that of paroxysmal tachycardia with recurrent attacks during early infancy. This is a condition frequently associated with a shock-like picture and acute distress in infancy. It unquestionably is often overlooked by many physicians and may be a contributing factor in many unexplained deaths in infancy especially when associated with other cardiac abnormalities. Not only is it important from the diagnostic standpoint but also from a therapeutic one. The case history will now be presented.

DR. C. COOPER STANFORD: This is a case of an infant first seen by a private physician at the age of about 4 or 5 months because of several attacks of suddenly becoming limp and showing marked pallor. These attacks began at about 2 months of age and sometimes occurred soon after waking. By the time the patient was seen by the physician he would be apparently normal.

When the patient was about 5½ months of age he had an attack which lasted several hours during which time the heart rate was very rapid. The EKG at that time showed a ventricular rate of 300 with regular rhythm but with P waves which would not always be definitely identified. Upon hospitalization the examination revealed a very pale but not cyanotic child with a temperature of 101° F. The heart rate was counted for three consecutive minutes and was 284, 286, and 285. Laboratory studies were negative except for a W.B.C. of 16,750 of which 71% were polys and 29% lymphocytes. Digitalization was instituted immediately by parental administration. Vomiting was induced a few hours after admission and the rate dropped immediately to 160. The patient was discharged on a maintenance dose of digitalis after about 48 hours.

During the next month while out of town the child had two attacks lasting 12 and 17 hours which

stopped spontaneously. The mother had been instructed in counting the heart rate.

A prolonged attack occurred at the age of 6½ months, one month after the previous hospitalization, at which time he was readmitted because of pallor and a heart rate of 240. The temperature was 101° and the W.B.C. was 23,250 with 55% polys, 43% lymphocytes, and 2% monocytes. The tachycardia subsided, digitalis was continued and the patient was discharged on the fifth day.

The patient had a few short attacks during the first three weeks following hospitalization which stopped spontaneously. Digitalis was discontinued 2 months after second hospitalization. Since that time the patient, who is now 3 years of age, has had no further attacks.

DR. RAPHAEL N. PAUL: This case presents several of the characteristic features of paroxysmal tachycardia. First of all the clinical picture is rather typical and represents many of the signs and symptoms of this disorder. Secondly, this case demonstrates its occurrence in the common age group of pediatrics since we see it more in infants than in older children. The frequency and paroxysmal nature of these attacks is well shown by this case. The response to digitalis is usual since we see relatively few cases that do not respond to this drug. As the last feature the occurrence of this disorder in an otherwise normal heart is quite characteristic.

I should like now to point out several of the essential features common to all types of paroxysmal tachycardia. First of all there is a sudden onset of tachycardia which occurs within one beat. Secondly, there is absolute regularity of heart action with practically no variation in rate from moment to moment. Over a longer period of time, however, there may be some significant alteration in heart rate. Ventricular tachycardia tends to be somewhat more irregular than the supraventricular variety which we will describe shortly. The paroxysmal nature of the disorder is quite characteristic of all types and the paroxysm may last for minutes, hours, or rarely for days. The response to carotid sinus stimulation or eyeball pressure is more often seen in the adult with paroxysmal tachycardia than in the child, although this may still be listed as one of the characteristics common to all types of paroxysmal tachycardia. With such vagal stimulation the



heart rate either returns to normal immediately or is not affected and does not slow down. Just as the paroxysm started suddenly, so usually does it stop suddenly.

There are three main types of paroxysmal tachycardia which, if they are to be differentiated at all, must be done so by means of electrocardiography. First of all there is the auricular variety which by EKG shows abnormal P waves if P waves are recognizable at all. The QRS complex is normal in this type. Second, there is the nodal variety. In this variety the P waves are absent or if there is retrograde conduction, the P waves may be inverted in leads 2 and 3. Since these two are so difficult to differentiate one from the other, even by electrocardiography, they are most times combined into one group, namely supraventricular. As a third type we have the ventricular tachycardia. In this variety we are more likely to have associated cardiac disease unless it is due to digitalis intoxication or quinidine poisoning. There is usually no response to carotid sinus pressure in the ventricular tachycardia. The electrocardiogram usually shows regular P waves with a wide and slurred QRS which is sometimes variable in appearance. The T waves are usually opposite the QRS complex.

In my experience paroxysmal tachycardia has not been especially rare in children, although the majority of cases have not been so severe as to necessitate hospitalization or even special treatment. The condition usually occurs without any detectable cause in a structurally normal heart although some "trigger" mechanism may be elicited in the history. The older child may complain of palpitation or fluttering of the heart, have a feeling of anxiety or impending danger and some trembling. An infant may exhibit a sudden onset of a pallor or a dusky-grey color. There may be in either or both a certain amount of weakness, prostration or the patient may be generally limp. In Hubbard's report, which serves as more or less a classic on paroxysmal tachycardia in infants, vomiting was almost invariable. This has not been my experience, however. In many cases we find a certain degree of temperature elevation and leukocytosis which was also demonstrated in the case

described this morning. However, it is difficult to say whether this may be cause or effect since it is quite possible that low-grade infection may act as the "trigger" mechanism for instituting an attack of tachycardia. There is for the most part a certain amount of restlessness and dyspnea and other signs of congestive heart failure particularly if the condition has existed for some period of time. These signs, as looked for in children, include an increased respiratory rate, cardiac dilatation and enlargement of the liver. The heart rate may be extremely rapid and often runs between 200 and 300 per minute in the average infant. The severity of complications will depend largely on three things. First, the duration of attack; secondly, the rate attained during the attack; and thirdly, the state of the heart prior to an attack. The longer the paroxysm exists and the higher the heart rate the more rapidly we would expect the individual to go into cardiac failure. Also, the normal heart will withstand extremely rapid rates over long periods of time much more easily than will the damaged myocardium.

The diagnosis is relatively easy and the electrocardiogram is not essential except to differentiate the types of paroxysmal tachycardia one from the other. A very rapid and regular pulse in a patient with a history of attacks of sudden onset and cessation is almost pathognomonic of paroxysmal tachycardia. The prognosis depends entirely upon the associated heart findings and not upon the paroxysmal tachycardia itself.

The treatment of the attack includes two essentials. The first is to stop the attack and the second to prevent recurrences. To stop an attack is far easier than the prevention of recurrences. There are several non-specific measures which are usually ineffective in children as compared with adults and these include breath-holding, postural changes, eyeball pressure, carotid sinus stimulation and the induction of vomiting. Specific treatment centers around certain drugs to stop the attack and to treat cardiac failure which frequently ensues if the attack has been of some duration. Digitalis is usually considered as the drug of choice in the treatment of this condition although

it in itself can produce paroxysmal tachycardia as a side effect. Digitalis will terminate an attack of supraventricular origin but is said to be contraindicated in the ventricular variety. A recent report in *Circulation* has contradicted this viewpoint and has proven it of value in several cases of ventricular tachycardia. Inasmuch as I have had no experience with ventricular tachycardia in children I cannot speak with any authority regarding its use in this condition. I have been accustomed to using digitalis (whole leaf) in the treatment of supraventricular paroxysmal tachycardia in exactly the same dosage as in the treatment of congestive heart failure. This dosage is 33 mg. per kg. of body weight as a digitalizing dose, given over a 24 to 48 hour period depending upon the degree of emergency. Since many of these individuals have as part of their condition, heart failure, it is well to keep the patient on a maintenance dose of digitalis for a period of time. Furthermore, the maintenance of digitalis may serve as a preventive to the recurrence of other attacks. For maintenance it is recommended that 10% of the total digitalizing dose to be given as a daily dose. How long to continue digitalis on a maintenance basis will have to be left up to individual clinical judgment, whether the patient has responded well, whether he is still in failure and whether he has suffered any recurrent attacks while on the drug. On the average I would continue maintenance digitalis over a six week to two month period.

A second drug of great value in the treatment of this condition is quinidine. For the supraventricular variety it will probably depress the sino-auricular node or the extra-nodal focus and consequently stop the attack. The adult dosage of this drug is 0.3 Gm., 3 times a day and in children can be used in proportionately smaller doses (2 mg. per pound). The only danger of quinidine is in the individual who is sensitive to the drug. In the ventricular tachycardia quinidine can be used to stop the attack and may prevent recurrences but it has a possible danger of producing ventricular fibrillation.

A third drug which has been widely used is mechoyl which is given subcutan-

eously in doses ranging from 1-5 mg. for a child. (An adult may tolerate from 15-50 mg.) This drug is relatively dangerous since it may produce cardiac standstill. When administering mechoyl one should always have atropine on hand to counteract its effect. It can be used only to stop the attacks and not for prevention of them. Although not many mishaps have been recorded in the literature with the use of this drug, it is the experience of myself and many others that it should be treated with great respect and considered a dangerous drug to be used only as a life saving measure.

More recently neo-synephrin intravenously has been used in children in dosages of 0.1 mg. as an initial dose and increased by 0.1 mg. increments every 30 minutes until effective or until 0.5 mg. have been given. I cannot comment on its use since I have no personal experience with it but it has been apparently quite effective in stopping an attack in a patient similar to ours. Two other drugs that have been used in somewhat of a nonspecific way are ipecac and potassium salts. Ipecac as an emetic illustrates the nonspecific effect of vomiting in stopping an attack. Potassium salts have been used on the assumption that the heart will not respond to vagal stimulation in the absence of potassium. There are a number of other drugs which have been used successfully or otherwise, but the great majority of attacks can be stopped with the drugs we have mentioned here.

In conclusion may I add that I believe paroxysmal tachycardia is probably far more common in infants and children than we have been led to believe and we might well follow the adage of "seek and ye shall find."

DR. ROBERT E. CUNNINGHAM: Is it considered safe to treat a patient with paroxysmal tachycardia by digitalis without first obtaining an electrocardiogram?

DR. PAUL: Yes, I believe so. The EKG is not needed for diagnosis except to specify the type of tachycardia. It would, of course, be well to know the variety one is dealing with although, in view of the recent work with digitalis in the treatment of ventric-



ular tachycardia, the specific type will no longer dictate the choice of drug. Formerly we were led to believe that digitalis was contraindicated in the ventricular tachycardia and under such circumstances we would be obligated to rule out this type in order not to give digitalis wrongly. I have not seen ventricular tachycardia in a child; it is indeed rare. As a result we are not apt to go wrong using digitalis before obtaining an EKG even should we still consider it contraindicated in ventricular tachycardia. The EKG is not essential in following the patient's progress since this can be observed clinically. Consequently, we can dispense with the EKG whenever circumstances are such that it cannot be obtained.

STUDENT: How soon would you start digitalis after making the diagnosis of paroxysmal tachycardia?

DR. PAUL: This will depend on several factors. The duration of the attack may influence the time of digitalization. If the patient is seen within an hour or two of onset, observation and any of the non-specific measures may be all that is necessary. If the attack has been of much longer duration, cardiac decompensation may have begun or be frankly manifest. Under such circumstance one would be more apt to start digitalis at once. It all depends on clinical judgment as to the patient's condition. We would certainly hesitate digitalizing every patient with paroxysmal tachycardia immediately on making the diagnosis. Once digitalis has been started one is almost obligated to continue it over a period of time. This may end up as needless medication if we choose to digitalize promiscuously. Furthermore, we know that a large number of these attacks are of short duration and will stop themselves. It is well to let this happen if possible.

DR. ETTELDORF: How often do you find heart failure in paroxysmal tachycardia?

DR. PAUL: That will be hard to answer with any degree of accuracy since there

are probably a great number of cases that occur over a short period of time and do not progress to as serious a complication as decompensation. However, those that continue over a longer time almost invariably manifest the signs of congestive failure and the longer the attack progresses unabated the more severe becomes the failure.

DR. ETTELDORF: We frequently observe the need for more than the calculated dose of digitalis. Will you please comment on this point?

DR. PAUL: The dosage schedule I have given should serve as a working guide and not as an absolute value much the same as our currently accepted dosage schedules for sulfonamides and antibiotics. We must use the patient's clinical response as an index to dosage and give more digitalis than calculated if the patient is still in failure or continues with his tachycardia. It has been well demonstrated at this hospital that not infrequently a patient will require as much as 50% to 60% more than the calculated dose for effective control of decompensation.

DR. ETTELDORF: Has rectal dilatation been advocated for stopping an attack?

DR. PAUL: Yes, and it belongs in with the group of non-specific measures I mentioned earlier. It probably exerts its effect in a round-about way be necessitating a change in position or alteration of breathing during the procedure. As for effectiveness, it is probably of minimal value.

DR. ETTELDORF: Over how long a period would you expect attacks of paroxysmal tachycardia after the first attack?

DR. PAUL: This is subject to wide variation since there are probably many cases exhibiting one or two short mild attacks and never any more. On the other hand, there are many patients, such as the one presented here, who have repeated attacks over long periods of time. In the majority of those I have seen the attacks generally do not continue over more than 6 months to 1 year.

DR. ETTELDORF: Thank you Dr. Paul. This concludes our conference for today.

## CLINICOPATHOLOGIC CONFERENCE

### University of Tennessee College of Medicine\*

L. F., a 68-year-old white female, was first admitted to the John Gaston Hospital in December, 1940, because of complaints of dyspnea and dependent edema of about 6 months duration. In 1918, when she was 36 years of age, the patient was refused life insurance because of a cardiac murmur. However, she experienced no symptoms referable to the cardiovascular system until approximately one year prior to admission. At that time, she began to have dyspnea and palpitation which became progressive. In July, 1940, she entered another hospital because of cardiac decompensation. There she improved with therapy and after discharge remained under the care of a private physician. About 2 weeks before admission to this hospital, she began to have rapid progression of dyspnea and dependent edema and noted swelling of her abdomen.

Past history revealed that the patient had had "growing pains" and epistaxis during childhood without a definite episode of rheumatic fever. Anamnesis was otherwise not contributory.

Physical examination disclosed a well developed and well nourished female in moderate dyspnea who presented significant findings of the following: pulse 120; blood pressure 140/120 and 132/64 on 2 determinations; moderate distention of neck veins; forceful apex impulse without apparent cardiomegaly; systolic and diastolic murmurs in the left parasternal area with a systolic thrill, systolic murmur at the apex and an accentuated pulmonic second sound; irregular irregularity of cardiac rhythm; moist rales in both lung bases; hepatomegaly to 4 fingers below the costal margin with tenderness to palpation; ascites; and 3 to 4 plus pitting edema of the feet and ankles extending upward to level of thighs.

Admission laboratory studies showed a RBC of 3,730,000, Hgb. of 13.6 Gm., and essentially normal WBC count, blood smear and urinalysis. NPN and icterus index were within normal range. Total serum protein was 5.35 Gm. per cent. Blood Kahn and Wassermann determinations on 2 occasions were 4 plus.

X-rays of the chest demonstrated cardiac enlargement in all diameters, increased prominence of the pulmonary conus, small aortic arch and knob and marked increase in the vascularity of the lungs. Electrocardiograms disclosed auricular fibrillation, right axis deviation, frequent ventricular premature contractions and evidence of myocardial damage and digitalis effect.

The patient responded well to treatment to a low salt diet, ammonium chloride and was discharged

on the 11th hospital day. During her last day in the hospital, she experienced a bout of substernal pain which radiated to the left shoulder and arm, persisted for about 1 hour, and was relieved by nitroglycerine sublingually.

The patient was admitted to this hospital for the second time in June, 1947, at which time she presented a clinical picture of recurrent cardiac decompensation. Blood pressure was determined at 160/80. Findings were essentially as described on her previous admission except that the spleen was palpable about three fingers below the costal margin and diastolic murmur over the cardiac apex was described.

Routine laboratory studies were negative except for urinary findings of 2 plus proteinuria and casts. Blood Kahn was again 4 plus. Numerous blood cultures were negative. NPN and total and fractional serum proteins were essentially normal. A second blood Kahn was positive. Repeated urinalyses were not revealing. An arm-to-tongue circulation time was 66 seconds. Bromsulfalein test showed 20% retention. Serum bilirubin on two determinations was 1.5 and 0.7 mg. per cent. Thymol turbidity was 4 units, while cephalin flocculation was 1 plus at 24 hours and 2 plus at 48 hours. A two hour urine urobilinogen determination demonstrated 0.2 Ehrlich units per 100 cc.

Fluoroscopic study of the heart revealed gross cardiac enlargement, the shape being globular and suggesting interauricular or interventricular septal defect. Flat plate of the abdomen demonstrated hepatic and splenic enlargement but was otherwise negative. Gall bladder and upper GI series were negative. Electrocardiograms showed auricular fibrillation, incomplete right bundle branch block and evidence of digitalis effect and probably left ventricular abnormality.

Response to therapy was good, mercurial diuretics being employed in addition to low salt diet, ammonium chloride, and digitalis. The patient was discharged after 5 weeks hospitalization.

She was then followed by frequent visits to the Out-Patient Department. She continued to display chronic auricular fibrillation, mild dyspnea and pedal edema, and slight hepatomegaly. Therapeutic measures were attended with success and included mercurial injections almost weekly.

The patient entered the hospital for the third time in March, 1950, for cardiac catheterization as a diagnostic study. Physical examination revealed a blood pressure of 140/70, a few moist rales at lung bases and cardiac findings of: P.M.I. in sixth intercostal space at the anterior axillary line, systolic thrill and probable short diastolic thrill in second and third intercostal space to left of sternum, slight accentuation of the pulmonic second sound, definite extension to left of supracardiac dullness, grade 3 systolic murmur at apex transmitted to axilla, grade 4 systolic and diastolic murmurs with to-and-fro quality in third and fourth intercostal spaces.

Fluoroscopy of the chest showed marked cardiac enlargement with the right auricle and right ventricle primarily involved. The aorta was noted to

\*From the Divisions of Medicine and of Pathology and Bacteriology, University of Tennessee College of Medicine and the John Gaston Hospital, Memphis.



be hypoplastic, extreme enlargement of the pulmonary conus and pulmonary arteries was noted, and a hilar dance was described. Electrocardiogram revealed auricular fibrillation, extreme right axis deviation, and evidence of right ventricular hypertrophy.

On March 3, 1950, cardiac catheterization was performed and blood samples taken for gas analysis. Results of the analysis was as follows:

Site	<i>O<sub>2</sub> content</i> (vols. %)	<i>O<sub>2</sub> saturation</i> (%)
Left auricle	18.2	80
Left auricle	19.69	87
Inferior vena cava	13.06	58
Right auricle (low)	15.4	68
Right auricle (mid)	14.92	64
Superior vena cava	11.27	49
Superior vena cava	10.13	44
Left femoral artery	20.57	91

Oxygen capacity was 22.67 vols. % and hemoglobin was 16.6 Gm. per cent.

The patient experienced only premature ventricular contractions and a mild cellulitis of the arm as a result of the procedure. She was discharged on the 11th hospital day.

The patient was admitted to this hospital for the fourth time on January 24, 1951, at which time she demonstrated evidence of cardiac insufficiency manifested chiefly by pronounced dyspnea. She had fared well until about one week prior to admission, when she contracted an upper respiratory infection and began to have cough and dyspnea. Edema of the lower extremities was not evident, and the liver was only slightly enlarged to palpation.

Laboratory studies were not remarkable except that the WBC count was 13,000 per cu. mm. with 81% neutrophils on differential count. Blood Kahn was 2 units.

Further examination demonstrated dullness to percussion over both lung fields with rales over both lung bases. On the second hospital day, the patient's temperature was recorded at 102.6° and 101.4°F. In spite of intensive antibiotic and cardiac therapy she showed increasing dyspnea and displayed a sudden terminal episode in which there was a crowing type of respiration with very slow cardiac and respiratory excursions. The patient expired a short time later.

DR. J. WARREN KYLE: I saw this patient on the wards and felt certain at that time that the diagnosis was interauricular septal defect. This diagnosis is well substantiated by evidence given in the protocol, especially that found by cardiac catheterization. This is an unusually interesting case, and perhaps there are additional diagnoses to be made. My discussion will be directed toward these additional diagnoses as well as toward the important features which established the diagnosis of interauricular septal defect.

To review some of the clinical findings, we see that this woman had a long history of cardiac abnormality. She was refused life insurance at the age of 36 in 1918 because of a cardiac murmur. She had no symptoms of heart disease until one year prior to her admission in 1940 at the age of 57 years. This history is compatible with interauricular septal defect, for this is one congenital anomaly which frequently permits the individual to live to fairly advanced years. This defect is twice as common in females as in males. Most of the cases diagnosed in the John Gaston Hospital have been females. Although it was not listed in the protocol, this woman had three children. Another interesting fact is that women with this anomaly frequently tolerate pregnancy well.

In the physical examination we find that the patient was of slender build, which is usually true in this condition, since the diminished peripheral circulation apparently impairs growth. The several normal blood pressure values rule out hypertensive cardiovascular disease, are against aortic valvular disease and are somewhat against patent ductus arteriosus. The chronic auricular fibrillation is a non-specific finding, but this is the commonest arrhythmia in interauricular septal defect and may be due to dilatation of the right atrium. The heart was very large in this case, which is usual in interauricular septal defect. Frequently these are among the largest hearts observed. On roentgenograms and at fluoroscopy it was noted that the right ventricle, right atrium, pulmonary conus and pulmonary artery were enlarged. The pulmonary vascular tree was engorged and there was a hilar dance.

There was a loud systolic murmur accompanied by a thrill to the left of the sternum in about the third interspace. This might be considered as due to a pulmonary stenosis either rheumatic or congenital, but I do not believe that was present in this case. Apparently the cause of the murmur in interauricular septal defect is mainly the dilatation of the pulmonary artery and not so much the defect itself. The murmurs in this condition are not specific and the murmur of interventricular septal defect is similar. The accentuated P<sub>2</sub> is a non-spe-

cific sign indicating increased pulmonary arterial pressure. It is likely that the loud systolic murmur at the apex was caused by mitral valve disease. At one time a diastolic murmur was heard. Mitral stenosis, either rheumatic or congenital, is frequently associated with interauricular septal defect, a combination called Lutembacher's syndrome.

The liver was large at first and decreased in size as time went on. This was probably caused by chronic passive congestion. There was also splenomegaly three fingers breadths below the costal margin. Such splenomegaly is rarely seen in heart failure alone, and it suggests that cardiac cirrhosis was present. By that I mean the liver damage following prolonged, severe chronic passive congestion with anoxia around the central veins leads to necrosis and subsequent fibrosis. There was a bromsulfalein retention of 20 per cent and a serum bilirubin of 1.5 mg. per cent. Such abnormalities are usual in chronic passive congestion of the liver, and they do not help much in deciding whether or not cirrhosis was present.

The arm to tongue circulation time was prolonged as we would expect. The EKG findings of right axis deviation and right ventricular hypertrophy are characteristic of interauricular septal defect.

Generally the heart failure in interauricular septal defect is mainly of the right heart, as it was in this case, and the lungs are frequently spared. If cyanosis appears it is generally terminal. This condition is classified in the cyanose tardive group of congenital malformations of the heart. The shunt is from left to right, but it may be reversed by heart failure.

The cardiac catheterization confirmed the diagnosis both by the introduction of the catheter into the left auricle and by the oxygen content of the different chambers. There was more oxygen in the right atrium than in the venae cavae. This indicated a left to right shunt into the right atrium.

Whether or not the interauricular septal defect was complicated by mitral stenosis poses an interesting academic problem. In this case there was aneurysmal dilation of the pulmonary artery, and this is more fre-

quently found in Lutembacher's syndrome than in interauricular septal defect alone. Also there were murmurs in the mitral area suggestive of mitral valve disease as I mentioned before. Some of the symptoms this patient had in the past may have been due to rheumatic fever, a condition having a high incidence in interauricular septal defect.

The albuminuria was probably caused by chronic passive congestion of the kidneys. A 4+ Kahn was observed on one occasion and 2 Kahn units on another. There was no history of known syphilis or anti-luetic therapy. I do not believe that syphilis, if present, was important in this case.

One might suspect coronary atherosclerosis. Nitroglycerine sometimes relieved her occasional substernal pains, but other than this there was no evidence to suggest that coronary-artery disease was a significant factor.

The patient had cough, dyspnea, and fever at times. This is suggestive of episodes of pneumonia which patients with this condition are likely to have. The fever does not suggest subacute bacterial endocarditis to me. Although congenital malformations of the heart usually predispose to bacterial endocarditis, the incidence of this complication is low in interauricular septal defect. She may have had a bronchopneumonia terminally or she may have had pulmonary emboli from thrombi in the right atrium or the leg veins. The main points in favor of pulmonary emboli are her age, cardiac failure and sudden death. I would like to ask Dr. Carroll to interpret the roentgenograms for us.

DR. DAVID S. CARROLL: Three of the most common congenital heart lesions in the non-cyanotic group are patent ductus arteriosus, interventricular septal defect and interatrial septal defect, and it would be well to consider the differential diagnosis of these lesions.

The outstanding features in this case from the roentgenographic point of view are the marked cardiac enlargement with the globular contour, the dilatation of the pulmonary conus, the hypoplastic aortic knob, the enlarged hilar arteries and the accentuated pulmonary vascular shadows.





FIGURE 1.

The usual X-ray findings in interventricular septal defect are a heart which is perfectly normal in size and contour, and certainly the marked enlargement of the heart in this patient is against that diagnosis. In patent ductus arteriosus, the left ventricle is the chamber of primary enlargement. The accentuated pulmonary conus and dilated hilar arteries go with patent ductus, but the cardiac contour and degree of enlargement are against the diagnosis. Also the patient did not have the murmur of a patent ductus arteriosus.

The roentgenographic findings in this case are those of an interatrial septal defect. Furthermore, the film made during cardiac catheterization shows the catheter passing from the right atrium through the defect into the left atrium.

DR. KYLE: I believe that in view of all the findings as well as the interpretation of the roentgenograms by Dr. Carroll, this case represents interauricular septal defect associated with mitral stenosis (Lutembacher's syndrome) with complications of congestive heart failure, chronic passive congestion of the liver and probably cardiac cirrhosis, congestive splenomegaly, and terminal pulmonary infarctions.

DR. KYLE'S DIAGNOSIS: I. Interauricular septal defect with mitral stenosis (Lutembacher's syndrome) with:

- a. Chronic passive congestion of the liver and cardiac cirrhosis
- b. Congestive splenomegaly
- c. Terminal pulmonary infarctions

PATHOLOGICAL DIAGNOSIS: I. Interauricular septal defect accompanied by:

- a. Calcific pulmonic stenosis
- b. Dilatation of the pulmonary artery
- c. Marked right ventricular hypertrophy
- d. Chronic passive congestion of the liver and spleen

e. Chronic organizing pneumonia

II. Syphilitic aortitis and pulmonary arteritis

a. Marked atherosclerosis of the aorta and pulmonary artery

III. Mild amyloidosis of the coronary arteries

IV. Focal areas of hyalinization of the pituitary and adrenal

DR. RUSSELL JONES: The significant changes in this case are within the heart. The interauricular septal defect is of unusual type involving the superior portion of the septum and measuring only 2.5 by 1.0 centimeters in dimensions. It forms a little ovoid defect immediately below the entrance of the superior vena cava. The lower border of the defect is a smooth, thick ridge covered by endothelium and formed of a rather thick bulk of muscle between the two atrial walls. Below this defect the foramen ovale was well-formed and measures 3 by 3.3 centimeters. A minute 2 mm. opening is present within its central portion. The latter defect is, of course, of no physiologic significance. (Fig. 2.)

The cardiac catheter was so readily introduced into the left atrium because of this little crest-like ridge just below the orifice of the superior vena cava. A slight deflection of the catheter to one side or the other would permit the introduction into either the left or right atrium. This same defect might also account for the flow of blood from the superior vena cava into the left or right atrium and from the left atrium over into the right atrium. There was some hypertrophy of the wall of the left as well as of the right atrium, perhaps the right atrial dilatation was the more marked. There was some mild opaque thickening of the tricuspid valve and a marked dilatation of

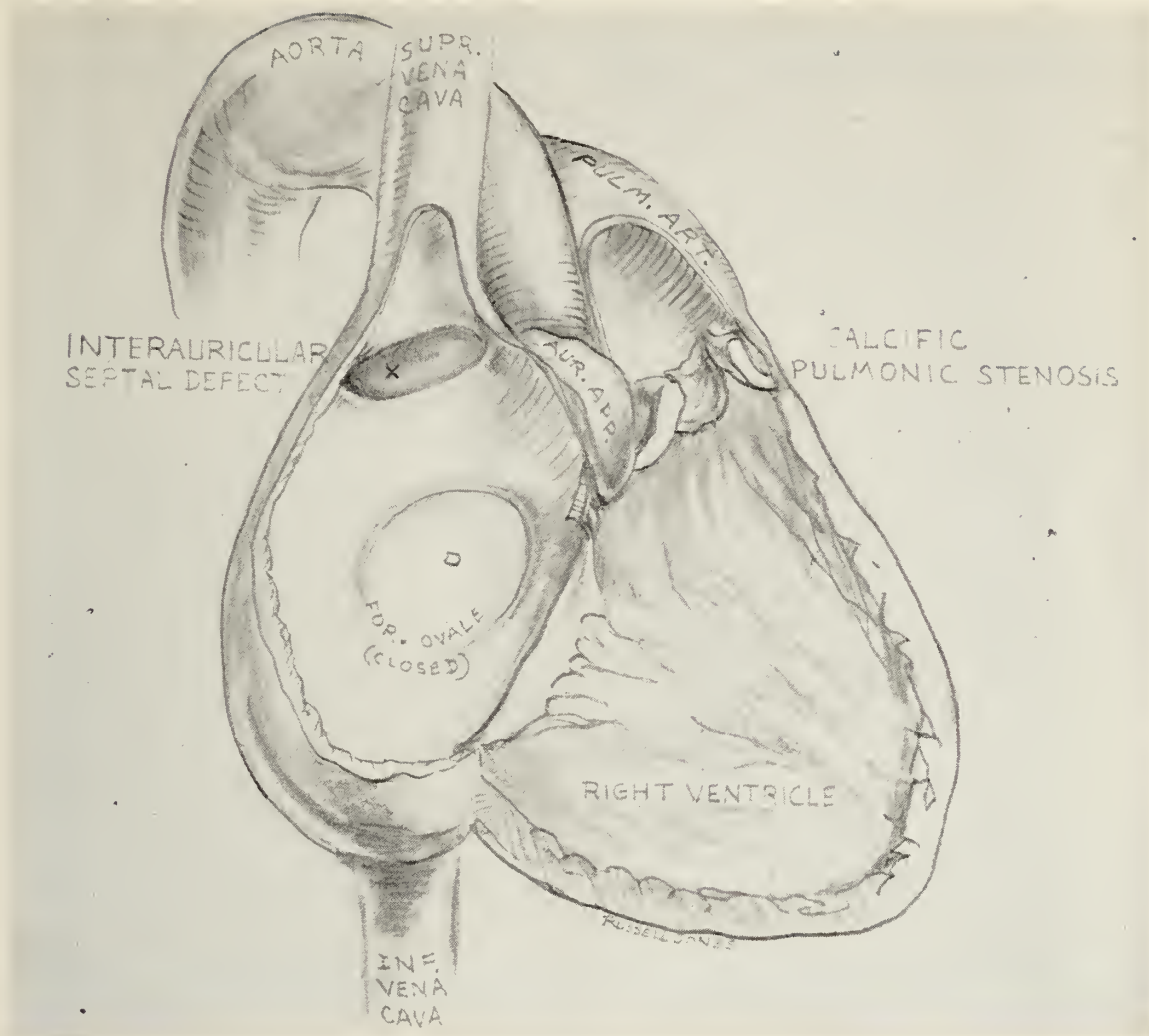


FIGURE 2

The semidiagrammatic illustration shows the right auricle and ventricle with their lateral walls removed and the septal portions exposed. Below the superior vena cava is the interauricular septal defect in a high position and distinct from the closed foramen ovale. The high position of the defect explains the ease with which the cardiac catheter could be passed into either the right or left auricle. The right ventricular wall is markedly hypertrophied. The pulmonary valve cusps are thickened, calcified and rigid but free of any sealing of the commissures. The pulmonary artery is dilated.

this valve ring. The valve itself, however, appeared to be competent. There is no evidence of rheumatic fever in this valve. The opaque thickening which we see here is very common finding whenever there is an increased pulmonary arterial pressure with a chronic cor pulmonale or a prolonged decompensation of the left side of the heart.

The right ventricle was markedly enlarged in capacity and its wall markedly hypertrophied, weighing almost  $4\frac{1}{2}$  times its expected weight. The left ventricular weight is unchanged.

	Gross Weight	Left Vent.	Septum	Right Vent.	Atria
Normal Controls (grams)	260	67	66	33	33
This case	527	69	108	142	84

This method of weighing the different cardiac chambers establishes the degree of cardiac hypertrophy with considerable accuracy and aids in the interpretation of the hemodynamic alterations.

Certainly one of the more marked features in this case is the calcific aortic stenosis with the thickening of the base of the valves to about 1 cm. and with the marked deposition of calcium salts in the central and basilar portion of the valve cusps. There is no sealing of the commissures but the marked rigidity of the valve produces a stenosis and hemodynamic changes comparable to those on the left side of the heart with calcific aortic stenosis.



The next interesting feature in this case is the dilatation of the pulmonary artery. There are two possible explanations for this: (1) the increase in circulation of blood through the lesser or pulmonary circuit due to interauricular septal defect, or (2) the calcific pulmonic stenosis would produce a nozzle-like effect thereby dilating the artery in a manner comparable to the pulmonary arterial dilatation in congenital pulmonic stenosis.

There is marked atherosclerosis of the pulmonary artery and aorta. The media is somewhat thickened and here and there the atheromatous material seems to encroach upon the media, thinning it. There is some thickening of the adventitia with some perivascular leucocytic infiltration. This process, interpreted as due to syphilis, probably did not cause an aneurysmal dilatation of this pulmonary artery but through weakening the media of the pulmonary trunk may have been an aggravating factor.

Probably one of the major problems in this case is whether the pulmonic stenosis is on congenital or acquired type. Generally we find the congenital type having a fusion of the cusps but with a very narrow central orifice. There is usually some remnant of little sinus-like structures and the three commissural areas. In this case there is no sealing of edges of the valve, the commissures are generally intact and the sinuses well formed. While this could be a congenital lesion, it could also have been acquired at any time since birth and may, in a sense, represent a different form of Lutembacher's syndrome; instead of the mitral valvular stenosis, we have a pulmonic valvular one. One may implicate the process of rheumatic fever since there are certain components in this case for the establishment of a rheumatic lesion. Rheumatic fever is a common disease of obscure pathogenesis. The most probable explanations for the appearance of rheumatic fever in the mitral and aortic valves is (1) some basic change in the connective tissue structures of the valves and endocardium and (2) local trauma. This results not only in thickening of all of the valves but in the little verrucal formations at the line-of-contact, the site of greatest trauma of the valves. The mitral and aortic valves are

subjected to much higher pressure and, hence, to greater trauma than the valves of the right side of the heart. Significant rheumatic lesions develop in the pulmonary or tricuspid valves following the development of mitral stenosis which has thereby produced increased pressure in the right heart chambers. Applying these same two concepts of tissue change and local trauma to the case at hand we see an increased pulmonary arterial pressure occurring in an interauricular septal defect. If the connective tissue changes of the rheumatic process are added to pre-existing "physiologic" trauma of the tricuspid or pulmonary valve, then we have the necessary conditions for the development of an isolated pulmonic calcific stenosis on a rheumatic basis.

There is, of course, the other possibility that this valvular lesion was acquired much later than most rheumatic lesions and gradually progressed in the manner that we usually associate with calcific aortic stenosis. Some ascribe this lesion to rheumatic fever but most concede that there is no conclusive evidence for such a pathogenesis.

In my opinion the pulmonic valvular stenosis in this patient was the lesion giving rise to the most significant hemodynamic disturbances. We must remember that the interauricular septal defect itself was small. Although there was no definite evidence of pulmonary arterial hypertension we see that most of the vessels in the lung had some degree of atherosclerosis. There is no way of telling whether the rate of atherosclerosis was more rapid in preceding years than it was before death. Some of the little vessels within the pulmonary tissue show some hyalin thickening and there is also some of the same hyalin change in some of the veins. In various areas of the lung there is evidence of chronic pneumonia with the organization of old exudate. Other repeated episodes of mild pneumonia had occurred in this patient.

The coronary arteries show a rather interesting change in some of their walls, consisting of little hillock-like protruberances into the lumen. This hyalin-like material is positive with the Schiff reagent

and shows many little intervening argyrophilic fibers. It stains with congo red, suggesting amyloid.

Some of the arterioles in the portal area of the liver were rather thick and large. There is some scarring in such areas as well as the focal dilatation of the sinusoids, almost producing the appearance of little angiomatous zones. This suggests a long-standing congestion. The spleen appears as a mass of large capillaries between which there is intervening connective tissue pulp. The arterioles are markedly thickened and hyalinized. There is some hyaline capsulitis over the splenic surface. The kidneys are of the usual size and show no important changes.

The stomach showed some atrophy of the mucosa. The bone marrow from the vertebral bodies showed about half hemopoietic tissue and half fatty tissue. There is one little group of lymphocytes in the marrow. The adrenal glands are of the usual size and shape. There is one little area of cortical hyalinization which occupies an area between atrophic cortical cells. There are many little clusters of lymphocytes and also some thick arterioles about the capsule of the adrenal. These little thickened arterioles of the liver, adrenal, kidney, and spleen suggest arteriosclerosis. We should note that on one occasion that this patient did have a diastolic pressure of 100 but this pressure apparently was not maintained. The pituitary gland shows a considerable increase in the interstitial hyalin-like material but no other changes are noted.

DR. KYLE: The pulmonary stenosis should not be emphasized too much in this case. The interauricular defect is not the same in this case as it is in the cases of congenital pulmonic stenosis. The post-stenotic dilatation of the pulmonary artery is common in congenital pulmonary stenosis but is not associated with a hilar dance. We had the hilar dance in this case, showing that there was a marked increased flow of blood through the pulmonary circuit. The patient also had evidence of pulmonary hypertension as indicated by the atherosclerosis of the pulmonary vessels. Pulmonic stenosis would not be incompatible with such evidences of increased pulmonary arterial pressure. Therefore, I

think we must ascribe most of the changes in this case to interauricular septal defect with the acquisition of a pulmonic stenosis in a way very comparable to Lutembacher's syndrome.

DR. CARROLL: We have seen many cases of pulmonic stenosis and infundibular stenosis in children but have not yet encountered a pulmonic stenosis in the older age groups. Just what changes might occur with it I do not know. To reach such an advanced age, the congenital pulmonic stenosis must have been mild and certainly might have predisposed to the later stenosis that we see here. As for the hilar dance, I do not believe that we could stress it too much since it can so readily be confused with transmitted pulsations from the heart.

DR. JONES: I cannot entirely agree with Dr. Kyle's comment that we should not stress the calcific pulmonic stenosis. After all we do emphasize the mitral stenosis occurring with interauricular septal defect and even dignify it with a name—Lutembacher's syndrome. A lesion of the aortic valve comparable to the pulmonic stenosis in this case might cause death. In this case I am sure that the interauricular septal defect is a relatively mild one. It also occurs in a little unusual position being high and more like a remnant of the sinus venosus than a defect in the septum primum. Many defects in the foramen ovale are larger than the one in this case and apparently do not produce any symptoms. It is possible, however, that considerable hemodynamic changes could have occurred with this defect and perhaps could have predisposed to the pulmonary stenosis which then attributed most significantly to the ultimate cardiac failure and death.

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# The President's Page

## WHY LIMIT THE LAYMAN'S VISION?



DR. KELLY

Please consider this an emphatic appeal to all physicians to make clear to the patient the character of services rendered, frankly discuss fees and make sure of an advance understanding in order

to minimize complaints when the statement for professional services is rendered.

The people should know that medical and surgical fees in general have not kept pace with other rising costs. The Consumer's Price Index, compiled by the U. S. Bureau of Labor Statistics, reveals that the price of medical care, including drugs, hospital room rates and physician and dental services, was relatively 14 per cent cheaper in 1950 than during the 1935-39 base period.

This just-released report indicated a 72 per cent rise in the cost of living since the 1935-39 period and at the same time medical care prices rose only 48 per cent. This comparison indicates that for every \$1 paid for goods and services generally in 1935-39, the 1950 consumer had to pay \$1.72. On the other hand the medical care purchased for \$1 in 1935-39 cost only \$1.48 in 1950.

So the dollar in 1950, and perhaps today, could buy 68 cents worth of medical care, but only 58 cents worth of other goods and services, or 86 per cent as much. Only the items of rents, fuel, electricity and refrigeration rose less rapidly than medical costs. Tell these facts to your patients. And they're government figures, not ours.

The people also should know, by your telling them, that through modern preventives they escape the cost of many otherwise catastrophic diseases packed with the dangers of death or chronic invalidism.

They certainly should be informed of the fact that infectious diseases that used to either kill or cost a small fortune because of prolonged illness with nursing and medical care and loss of earning time now respond to sulfa drugs and antibiotics in a few hours or days, permitting prompt return to work.

We can and should take the time to show our patients and the public what medicine has done through prevention and cure and how much it has saved through the prolongation of life and the control of suffering and death. With such knowledge hammered home, the people would realize how relatively low the present costs actually are, when all factors are considered.

Even today, a thorough examination and therapeutic advice may cost less than a permanent wave and this is not to decry the effects of the beauty parlor visit. But it is medicine's quicksilver back of the mirror that makes the beauty safe and lasting.

We can take time to show how medical progress has eliminated or crippled the killers of the past, deadened the sting or shortened the duration of nearly all the more serious diseases of the present, and extended the time for payment through increased longevity.

If all physicians were thoughtful, reasonable, patient, gracious and good, their patients would gladly pay in full and some with gratuity. They would realize that the precious commodity for which they were paying is—life itself.

*Ernest S. Kelly*

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OCTOBER, 1951

## EDITORIAL

### TREATMENT OF ADVANCED CANCER OF THE BREAST BY HORMONES

One wishes this type of treatment were never necessary. But the ideal can never even be approached as long as women do not give the doctor an opportunity to diagnose and treat the lump in the breast early, nor as long as doctors watch and wait out the growth of a lesion before referring the patient to a competent surgeon. As long as these things happen doctors will have patients with inoperable cancer of the breast and with widespread metastases to soft tissue and bone. By the use of hormones the physician not only may keep the patient more comfortable but may prolong her life at times for a year or more. This editorial calls attention to reports of committees of the Council on Pharmacy and Chemistry of

the American Medical Association based on a study of more than 800 cases.\*

Palliative treatment may be of several types. Surgical removal of localized lesions is one. For osseous or soft tissue lesions irradiation should usually be chosen. However, if metastases are widespread in the skeleton or soft tissues, or have involved the lungs, hormonal therapy should be employed.

The choice of hormones will depend to some extent upon the physiologic age of the patient—the presence or absence of ovarian activity. In the treatment of patients before menopause or during the menopause testosterone propionate is the hormone found to be most effective. The Committee points out, however, that castration is usually more effective in the premenopausal woman and should be the treatment of choice.

After the menopause estrogens are as effective, and in some instances more effective, especially if used five or more years postmenopausal, than testosterone. The use of estrogens *before or during the menopause* contains the danger of *accelerating* the malignant disease.

Not only is the choice of hormones dependent upon the physiologic age of the patient, but may also be related to the site of metastases to be treated. Soft tissue, skin and lymph node, and pulmonary metastases seem to respond best to estrogen therapy in women five or more years beyond the menopause. In the postmenopausal woman metastases to bone seem to be affected equally, from the objective viewpoint, by estrogens or testosterone. However, experience has shown that testosterone propionate is superior in the relief of subjective symptoms, especially that of pain, and therefore is the hormone of choice in the case of osseous metastases.

From its analysis of data the Committee feels that testosterone propionate should be given in a dose of 50 mg. three times weekly to a minimum of 3 Gm. in a minimum of three months before deciding no response to therapy will be obtained. Of the estrogens, diethylstilbesterol, dienestrol, and premarin should be given in a minimum total dosage of 4 Gm., and ethinyl estradiol

\*Roentgen and Steroid Hormone Therapy in Mammary Cancer Metastatic to Bone, J.A.M.A., 144:997, 1950; Current Status of Hormone Therapy of Advanced Mammary Cancer, J.A.M.A., 146:471, 1951.



and estradiol dipropionate in a minimum total dosage of 200 mg., the treatment duration being a minimum of 3 to 6 months.

It is also suggested that hormonal therapy be continued until reactivation or a steady progression of the process occurs. Remission may occur after reactivation if treatment is stopped. Furthermore, it appears that a second remission may also be brought about by change to another hormone.

The data indicate that the mean duration of improvement in metastatic disease is about a year for testosterone propionate and 16-18 months for the estrogens. The mean survival time, after admission to the study, of those who died was about 9 months in hormonally treated patients. Those who showed improvement lived about twice as long as those who showed no improvement.

Side effects to be expected are masculinization from the use of testosterone and uterine bleeding from the exhibition of estrogens. Edema and hypercalcemia may occur with the use of either group of hormones. The former results from salt retention and may precipitate failure in patients having a diminished cardiac reserve. The latter occurs in instances of osseous metastases and may result in renal and central nervous system complications.

The hormones then may offer palliation to the woman who through her own or the doctor's neglect has an inoperable carcinoma of the breast.

R. H. K.



#### IMMUNIZATION AGAINST TETANUS AND CIVILIAN DEFENSE

Your editor's confreres among the surgeons verify the fact that a large proportion of persons sustaining traumatic wounds have not been immunized with tetanus toxoid and require the prophylactic use of tetanus antitoxin. If there is need for organized Civilian Defense, is there not need for more universal immunization against tetanus? A bombing catastrophe means wounds and tetanus. Is it not our responsibility, in the urban or target areas at least, to advise our patients concerning the need of immunization against tetanus?

R. H. K.

#### GOVERNMENT MEDICINE A FACTOR IN RISING MEDICAL COSTS

Several months ago I visited the campus of my Alma Mater. Across the street from the University Hospital loomed an immense, beautiful, modernistic structure almost ready for occupancy—a 500 bed VA hospital.

Recalling the impact upon Vanderbilt University Hospital when Thayer VA Hospital was opened, in terms of the need to match government salaries for personnel from janitors and cooks to technicians and nurses, I asked my friends on the Iowa faculty,—"What's this going to do to you and the Iowa City Hospitals?" I was referred to a published answer to my question.\* This was a presentation of data analyzed by the superintendent of the University of Iowa Hospitals and the director of Personnel Service of the State University.

In hours of the work week, vacation and holidays the VA employee has an advantage over the employee of the University of Iowa and Mercy Hospitals.

In the nursing field government nurses are paid on a rank basis, in civilian hospitals on the basis of duties performed. However, the Junior or Associate VA nurse will receive some \$1500 more annually than the General Duty nurse at the University or at the Mercy Hospital. The Full Grade VA nurse will receive about \$2200 more than the Head Nurse at the other local hospitals. The Senior VA nurse will be paid from \$2500-\$3000 more per annum than the Supervisor at the University Hospital—Sisters filling this post at Mercy Hospital. Orderlies will be paid \$500-\$1200 more than in civilian hospitals. The VA admitted it would concentrate its efforts to recruit personnel within a 35 mile radius of Iowa City.

The salary differentials for non-professional employees will be somewhat as follows, the *sum representing salary in excess of that paid by the University of Iowa Hospital or Mercy Hospital*.

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\*Hartman, G. and Marks, A. C., Local Impact of Veterans Hospitals, J. Am. Hosp. Assoc., 25: 41, 1951.

Social worker	\$800-1500	Stenographers	1000
Physical therapist	300-1300	Secretary	700-1000
Occupational therapist	300-1300	Food Service Helpers	400- 700
Electrocardiographer	900	General cooks	500- 700
X-ray technician	550	Specialized cooks	500
Laboratory technician	750	Head cooks	500- 700
		Janitors	300- 500
		Maids	500- 700

With an admitted policy of recruiting personnel for a 500 bed hospital from a city of some 15 to 20,000, it requires no seer to realize what will happen to the personnel of the local hospitals when the VA is able to overbid the civilian hospitals in this manner. However, this is so characteristic of centralized bureaucracy, one of whose major shortcomings is inflexibility for adjustment to local conditions. (It is this inflexibility which makes one shudder at the thought of governmental medicine directed by a Washington agency.)

Who pays for the forced increase in salaries of civilian hospital personnel? Quite obviously it is the patient admitted to the private or local hospital. And ironically he pays twice or three times—once in increased taxes to pay the VA salaries, and again when he is admitted to the private hospital which has raised its rates because of increased overhead and, if he is a tax-paying citizen of a state or community which has a tax supported hospital, he pays a third time because of its increased hospital costs. Yet some of our Washington administrators speak piously of the increasing cost of medical care.

Uncle Sam is in the hospital business. The collection by the Veterans' Administration of some millions of dollars a year in Blue Cross and hospital insurance, and from workmen's compensation and other industrial insurance companies, plus the squeeze of increased hospital costs through governmental competition for personnel, indicates that our government is well on the way to force the closure of the doors of the private hospital.

R. H. K.

## VA MEDICAL CARE

### *A Contest for Survival Between the Civilian and Government Hospital Systems*

By the Committee on Veterans Affairs,  
Tennessee State Medical Association

DR. H. H. SHOULDERS, Nashville, Chairman  
DR. L. W. EDWARDS, Nashville  
DR. KYLE COPENHAVER, Knoxville  
DR. E. G. KELLY, Memphis  
DR. W. C. CHANEY, Memphis

The present hospital program of the Veterans' Administration has created a federal system of medical care of such proportions as to constitute a potent threat to the continued existence and expansion of our civilian system of medical care.

If the creation and operation of such a federal system of medical care were necessary in order to make good medical and hospital services available to veterans, there would be no argument. But such a situation does not exist. The present system of civilian medical care in the United States is the best to be found in any country in the world. This Veterans Administration hospital expansion program cannot possibly be just for the purpose of making these services available to veterans.

The *issue* with which the medical profession and the people are confronted is nothing less than a *contest for survival between our civilian system* of medical care and a rapidly expanding federal system of medical care.

If this federal system can continue to draw upon our civilian system for skilled personnel, and draw upon the taxpayers for large sums of money, and continue an unchallenged campaign of publicity to build faith in the "superiority" of this federal system, and destroy faith in the efficiency of our civilian system, it will not be very long until our civilian system is destroyed by a process of government encroachment.

Must such a tragedy take place? The answer is "No." This issue can be resolved, with benefit to all concerned, by the adoption of a program which will make it possible for veterans, who are entitled to free service in government institutions, to



obtain the services they need for acute illnesses and injuries, at government expense in our civilian system of medical care, while still allowing veterans with service connected and certain types of chronic disability the right to admission to veterans' hospital.

The medical profession of Tennessee has given serious consideration to this issue and adopted a proposed program for its solution. The essential features of the proposed program are in two parts as follows:

*Part 1.* That veterans who require hospitalization for the following types of disabilities be eligible to services in veterans' hospitals:

- (a) Service-connected disabilities,
- (b) Tuberculosis,
- (c) Mental illness,
- (d) Other forms of chronic illness which require hospitalization for more than ninety days,
- (e) Disabilities in dispute as to whether service-connected or not.

*Part 2*

(a) That a standard medical and hospital insurance policy be made available, at government expense, to every veteran who is unable to pay the premium cost of such coverage.

(b) That the insurance coverage embrace all disabilities which are not eligible for admission to a veterans' hospital, as outlined in Part 1, excepting disabilities which are covered by compensation laws or other forms of public liability.

(c) That "the ability to pay" for such insurance coverage be determined on the basis of "the taxable income" of the veteran as determined for federal income tax purposes.

(d) That the Congress of the United States determine the income level at which veterans would cease to be eligible for this benefit.

(e) That the insurance policy be renewable each year on the same basis as the original.

(f) That the government, through existing agencies, issue checks to eligible veterans which are payable *only* for such insurance coverage, and cashable *only* when signed by the veteran and countersigned by an approved insurance company.

### The Effect of the Adoption of Such a Program

1. The major issue would be resolved. The contest for survival between our civilian system and the expanding federal system would end. In fact, both systems would survive. They would survive on such a basis that each would complement the other rather than conflict with each other, as is the case today.

Veterans' hospitals would admit patients suffering from the disabilities mentioned in Part 1 on the same basis as at present. The relationships that have been established between the Veterans' Administration and sixty-six medical schools would not be affected. Veterans with the insurance coverage would obtain the services they need in civilian hospitals. The insurance coverage would enable sick veterans to obtain their services in our civilian system in the same manner as if they had paid the premium cost themselves—in the same manner, in fact, as all other citizens including veterans themselves who pay the cost of their medical services.

2. It would restore to the veteran freedom of action in selecting his hospital and physician.

3. It would remove the inequities that exist in the present program by providing the same benefit to every eligible veteran.

4. It would restore normal and free relationships between physicians and veterans, at the community level, and thus remove the cause of frictions that arise so frequently when a veteran is compelled to leave the hospital and physician of his choice in order to obtain *free service* in a veterans' hospital.

5. It would focus the interest of veterans everywhere on preserving the efficiency of our civilian system of medical care and upon its proper expansion and not upon the expansion of a government system.

6. It would reduce the cost of this benefit program enormously. There would be no need for the construction of new veterans' hospitals. The present facilities would be more than adequate for the care of all veterans who would be eligible for admission to a veterans hospital. The cost of insurance coverage is much less than the cost of building and operating hospitals.

7. The issue of *abuse* would be resolved by removing the provisions of the present law which *invites* and *protects* abuse. A fair and uniform method of determining the eligibility of the veteran for this benefit would be established. The question of eligibility would be determined in advance of the illness or injury and not in the admitting office of a veterans' hospital, and without subjecting the veteran to the "indignities" of a "means test" as usually applied.

8. The issue of "control" would be resolved by the simple process of restoring to each veteran, who receives the insurance, the power to control his own affairs with respect to his medical and hospital service.

The importance of this issue of control has been magnified out of all proportion to its merits. And what is worse, it has diverted attention from the *real basic* issue.

In an article under the heading, "Why I Was Ousted from the Veterans Administration," Dr. Paul Magnuson said, "At stake is a national policy in which every physician, every veteran—yes, every citizen, has a vital interest." We agree with that statement. He then went on to say, "*The question is simply this: Shall Veterans' Hospitals be run by doctors or by bureaucrats?*" With this statement we do not agree. That is not a statement of the basic issue. This power to control is of great concern to those who are interested in the administration of the present program and in witnessing its further expansion. Even doctors can and do become bureaucrats in a short time in certain positions, and apparently without realizing it themselves. The control by doctors does not eliminate bureaucratic control.

The report of the Senate Committee appointed to investigate the "firing" of Dr. Magnuson expressed a similar idea with regard to the importance of "control" and emphasized the importance of the relationships that have been established between the Veterans' Administration and some sixty-six medical schools. The idea is also supported by the actions and by the testimony of several Deans' committees. (It is well known, of course, that Senator Humphreys the Chairman of the Senate Com-

mittee, is a consistent and able advocate of some form of government medicine.)

Certainly the power to "control" is a matter of vital concern to those who would place agencies of the government in control of all our activities.

This idea of power and control is entirely inconsistent with the idea of freedom. Nothing can be more destructive to freedom in medicine than the creation of power to control patients and doctors by a government agency, regardless of its primary purpose and regardless of who exercises the power.

### Two Opposing Philosophies

There are two opposing philosophies of medical care which have made themselves apparent in recent years. One philosophy finds expression in efforts to accomplish a wider distribution of good medical services and facilities to the end that they become readily available to all the people. The enactment of the Hill-Burton law and the excellent work that has followed it in the states are fine expression of this philosophy.

The other philosophy finds expression in efforts to make large medical centers larger and to adopt and enforce policies which have the effect of creating powers which can be exercised over large groups of people—policies which do not take into account the immediate needs of the people at the community level.

This philosophy finds expression in the present policies of the Veterans' Administration and in recent actions by the Congress. The sum of \$350,000,000 was appropriated for additional veterans' hospitals and the appropriation for aid to the construction of civilian hospitals was reduced from \$150,000,000 to \$82,500,000.

Certainly there is need for the services of large medical centers for teaching and for the purpose of serving patients whose conditions require highly specialized services and the use of elaborate technical equipment. The number of such patients is small, however, when compared to the number with conditions which can be promptly and properly treated by a competent physician in a good community hospital.

The antagonism between these two philosophies no doubt will go on. It may be



that the well-organized small groups, who support the latter philosophy, will win if the rank and file of physicians are not alerted to what is going on.

The labor government in England succeeded in establishing a system of state medicine by obtaining the indorsement and collaboration of "medical leaders" concerned with the administration of the larger medical institutions and organizations. This collaboration was obtained by offering special privileges and inducements to them. The rank and file of physicians were then compelled to accept what was offered or to strike. Can it happen here?

It is of interest that the Board of Trustees of the American Medical Association recently skirted around the *basic issue*. They took action opposed to the recommendations of the Hoover Commission on this subject and made one recommendation with regard to the abuses that are so widespread in the present Veterans Administration program. The recommendation reads as follows: "That the present law pertaining to the hospitalization of veterans with non-service-connected disabilities be reviewed and amended with the purpose of controlling the admission to Veterans' Hospitals of non-indigent veterans with non-service-connected disabilities."

The issue of abuse, of course, is important, but however flagrant it may be it is not the major issue. Furthermore, this minor issue will be resolved along with the major issue or it will not be resolved at all.

#### There Is Need for a Medical Policy

Organized medicine is without a medical policy with regard to this basic issue, notwithstanding the fact that all the basic principles for which medicine has stood for more than a hundred years are involved.

This state of affairs should not exist and certainly should not continue. There is urgent need for a medical policy which represents the judgment of the medical profession as a whole, and not the judgment of a small group. . . . A policy which can be understood by veterans at the local level throughout the country, and by all the people.

This issue must be removed from "star chambers" and small committee rooms if it is to be resolved on a sound and equitable basis.

The House of Delegates of the American Medical Association is the only body that is empowered to act on such a policy.

It has been suggested that powerful forces, both within the American Medical Association and without, are so joined in an effort to extend this federal system of medical care that efforts to secure action on the basic issue involved will be futile and useless. Regardless of whether this opinion is true or false, there is but one course to be followed by those who would preserve our American system of medical care, and that is to fight for it. We can with honor fail to succeed but we cannot with honor fail to try.

## WHAT'S NEW IN MEDICINE

### Subtotal Adrenalectomy for Intractable Hypertension

In recent years subtotal to total adrenalectomy has been used experimentally in patients representing failure following the Smithwick procedure or in severe grades of hypertension.

Wolferth and associates (Ann. Int. Med., 35:8, 1951) have made certain observations in their patients so treated. Their first group of patients, 16 in number, had unilateral adrenalectomy at the time of the second stage of the Smithwick operation. The results seemed no better than with the thoracolumbar operation alone. Then in 23 cases 90 to 100% adrenalectomy was done,—adrenalectomy alone in 15 and combined with sympathectomy in 8 cases. The latter combination has led to more satisfactory lowering of the blood pressure than the use of subtotal adrenalectomy alone.

In almost all instances some degree of adrenal insufficiency occurs which must be adjusted by the giving of cortisone, DCA and salt. Because of the inherent dangers

of adrenal insufficiency adrenalectomy is still in the stage of study and requires most expert handling from many viewpoints.

Though it seems that the adrenal cortex is more important than the sympathetic nervous system in maintaining hypertension, even after total adrenalectomy, in some instances, there is some unknown mechanism which produces and maintains hypertension.

## DEATHS

**Dr. Andrew Smith**, county physician of Knox County and a practicing physician in Knoxville for the past 45 years died September 5, 1951. Aged 72.

**Dr. P. L. Brock**, venerable Morristown physician who had practiced for 62 years in Hamblen and Grainger Counties died September 13, 1951. Aged 83.

**Dr. H. H. Hudson**, Director, Industrial Hygiene Service, Tennessee Department of Public Health, engaged in public health work, both county and state since 1936, died September 8, 1951. Aged 40.

**Dr. W. M. Breeding**, Livingston, President of the Overton County Medical Society, and practicing physician in Overton County for 50 years, died August 31, 1951. Aged 75.

**Dr. N. A. Tucker**, Henderson, died September 3, 1951. Aged 72.

**Dr. Maecenas B. Hendrix**, Memphis, died September 1, 1951. Members of Memphis and Shelby County Medical Society were honorary pallbearers. Aged 70.

**Dr. Edwin J. Lipscomb**, orthopedic surgeon of Memphis, died September 10, 1951. Aged 65.

**Dr. Upton B. Bowden**, Pelham, Grundy County's only physician and county health officer, died August 24, 1951. Aged 67.

**Dr. George B. Alder**, Chattanooga, died August 7, 1951. Aged 65.

**Dr. C. M. Capps**, Knoxville, venerated physician, surgeon, and poetic personality

who practiced medicine in the Knoxville area for 65 years, died August 27, 1951. Aged 88.

**Dr. Kline W. Evans**, Columbia, young practicing physician in Maury County, died of polio at Vanderbilt Hospital on September 21, 1951. Aged 32.

## PROGRAMS AND NEWS OF MEDICAL SOCIETIES

### Memphis and Shelby County Society

The scientific program scheduled for October 2 was as follows:

Case Report—"Electro-shock in Pregnancy"—James D. Wallace, M.D.

Papers—"Tertian Malaria in Korean Veterans Treated with New Anti-malarial Drugs"—Wheelan D. Sutliff, M.D.

Discussor—J. D. Cotrell, M.D.

"Acute Intestinal Obstruction"—M. J. Tendler, M.D. and to discuss—Clarence E. Gillespie, M.D.

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### Knoxville Academy of Medicine

Dr. Ralph Monger, Secretary of the Academy, reports good attendance at the first meeting of the new program year. A Symposium on Fetal Mortality in Cesarean Sections was scheduled for the October 9 meeting, and a guest speaker was to address the Academy at the October 23 meeting.

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### Nashville Academy of Medicine

The first meeting of the fall was a dinner meeting at Vanderbilt University Hospital on September 4. "Portal Hypertension" was the subject for discussion. The anatomic aspects were considered by Dr. Harrison Shull. Surgical aspects and case presentations were given by Dr. James Kirtley.

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Members of the Academy were the guests of Mid-State Baptist Hospital for their dinner meeting on September 18. Following the dinner, the Officers and Board of Directors served as a panel which answered questions about the greatly expanded program of the Academy. Members had a



chance at first hand to discuss the business affairs and public service projects of their society.

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The October 3 dinner meeting was scheduled at the Maxwell House with Dr. R. F. Bowers, Memphis, as guest speaker. Dr. Bowers, who is Chief of Surgery at Kennedy (VA) Hospital, was to speak on "Surgical Therapy of Chronic Pancreatitis."

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The Academy shared a large booth at the State Fair in Nashville with this Association. Thousands of Tennesseans visited the booth which featured the Tennessee Plan Exhibit, continuous motion pictures, and an interesting heart quiz. Thousands of brochures, leaflets, magazines and other health information were distributed. A skeleton, graciously loaned to the Academy and the Association by Vanderbilt Medical School, created a great deal of attention and attracted hundreds to the booth.

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### Consolidated Medical Assembly, West Tennessee

The Assembly held its annual barbecue in August at Dr. Charles F. Webb's agricultural and dairy holdings known as Quinlac Farm. Dr. Webb was host to the more than 100 doctors present. Following the delicious dinner, and an inspection of Dr. Webb's herd of Angus cattle, the Assembly voted to go on record as favoring the establishment of a major cancer research project in cooperation with the American Cancer Society with Jackson serving as the center of a proposed "research area" comprised of several adjacent counties. On motion of Dr. Jere L. Crook, Dr. R. H. Hutcheson, Commissioner of Public Health who addressed the Assembly and described the proposed project, was requested to inform the ACS of the Assembly's favorable action.

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Dr. Phillip Thorek of Chicago addressed the Assembly at its first scientific meeting of the year at the New Southern Hotel on

September 4th. Dr. Thorek's subject was "Intestinal Obstruction." Dr. Hughes Chandler led the discussion.

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### Chattanooga-Hamilton County Society

Chattanooga physicians enjoyed their annual dinner-dance on September 12 at the Fairyland Club atop Lookout Mountain. Dr. Albert S. Easley was chairman of arrangements.

## MEDICAL NEWS IN TENNESSEE

### University of Tennessee College of Medicine

Dr. Arne V. Hunnison has joined the staff of the University of Tennessee Medical Units as assistant professor of Preventive Medicine. He replaces Dr. Raymond Laird, who resigned to become chief consultant on malaria control in Burma for the Economic Cooperation Administration.

Dr. Nils Lofgren, on a year's leave of absence from the University of Stockholm, Sweden, has been appointed as instructor in chemistry of the University of Tennessee Medical Units in Memphis.

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### Vanderbilt University School of Medicine

Under the provisions of the Abraham Flexner Lectureship established in 1927 an outstanding scientist is brought to the medical school every two years. Dr. Hans Ludwig Kottmeier, Chief of the Gynecological Section of Radiumhemmet, Stockholm, Sweden, is the eleventh lecturer to be selected. He will give the following lectures during October and November:

The Program of the Cancer Campaign in Sweden

Classification of Gynecological Cancer

Radiotherapy of Cancer of the Uterine Cervix

Radiotherapy of Cancer of the Endometrium

Surgery versus Radiotherapy in Gynecological Cancer

## New Medical Group in the Making

Physicians in DeKalb, Wilson, Sumner, Macon, Trousdale, Smith, Robertson, and Jackson Counties feel the need for organizing a medical society composed of the above counties for social and scientific purposes. Most of these counties have difficulty maintaining interest and securing good scientific programs for their individual county societies.

The desirability of organizing such a society was explored at a preliminary meeting at the Lebanon Golf and Country Club on September 19th. The meeting, A Dutch dinner, was attended by Doctors O. Reed Hill, Lebanon; W. K. Tilley, Lebanon; Chas. T. Lowe, Lebanon; John R. Smith, LaFayette; Sam McFarland, Lebanon; Lester Littrell, Jr., Mount Juliet; J. H. Tilley, Lebanon; R. C. Kash, Lebanon; G. Thomas Procter, Nashville; and V. O. Foster, Executive Secretary, TSMA.

Dr. O. Reed Hill, Lebanon, was chosen temporary Chairman, and a spirited and enthusiastic discussion of the new society followed.

### Decisions reached:

1. Physicians in these counties need an "intermediate organization" between the county and state level for social and scientific purposes.

2. The new society should not conflict with the program and interests of the Andrew Jackson Academy of General practice.

3. The meetings should rotate among the larger towns of the area.

4. The society should meet bi-monthly on the odd-numbered months—November, January, etc.

5. Tentative meeting date—1st Wednesday night, odd months.

6. Next meeting—Wednesday, November 7, Lebanon Golf and Country Club, 6:30 p.m.

7. The twelve doctors present at the first meeting to be hosts to the other 50-odd physicians to be invited to the next dinner meeting.

8. Dr. Chas. Lowe, Lebanon, was appointed Scientific Chairman for the next

meeting to secure program. The State Executive Secretary was asked to assist Dr. Lowe arrange program, to be both scientific and entertaining.

9. Further organizational matters will be discussed at next meeting, possibly constitution and by-laws, election of officers, and appointment of committees.

10. Invitations will be sent out by the headquarters office of the State Association and by the doctors who attended the first meeting.

The society now in the pangs of labor, will be duly delivered at the next meeting. Its organization has the approval of the Councilor of the district, Dr. Myrtle Smith, and of this office. Best wishes to the newest medical society in Tennessee.

## PERSONAL NEWS

A portrait of **Dr. Harry Schmeisser**, long-time professor of pathology and bacteriology at the University of Tennessee Medical Units, was presented to the University on September 15. It is a gift of Mrs. Schmeisser and will hang in the new Institute of Pathology Building. Dr. T. P. Nash, Jr. presided at the exercises. The presentation address was delivered by Dr. Ernest W. Goodpasture, professor of pathology of Vanderbilt University School of Medicine. The portrait was unveiled by Dr. Schmeisser's daughter, Mrs. Abner McGehee, and his son, Harry C. Schmeisser, Jr. Dr. O. W. Hyman received the portrait for the University.

**Dr. Frank L. Roberts** of the University of Tennessee College of Medicine was honored by the West Tennessee Public Health Co-workers Council. Following a dinner, Dr. M. D. Ingram, director of the Gibson County Health Department, presented a plaque to Dr. Roberts who was health officer of the county for 12 years and who served two of those years as regional director of public health for West Tennessee.

**Dr. Carrol H. Long**, Johnson City, addressed the Elizabethton Rotary Club



August 29. His subject was "Early Recognition of Cancer Symptoms." He was introduced by **Dr. Jim Brown**, program chairman.

**Dr. R. B. Wood**, Knoxville, Deputy Director, Knoxville Civil Defense, presided at joint meeting of Knoxville, Oak Ridge and Maryville OCD officials at the Knoxville Academy's building August 29. **Dr. R. H. Hutcheson** and **R. H. Monger** were on the program.

**Dr. Hollis E. Johnson**, Nashville, president-elect of the Nashville Academy of Medicine, was elected Vice-Chairman of the Nashville-Davidson County Civil Defense Advisory Council last month.

Among the Tennessee physicians scheduled for induction into the U. S. Chapter of the International College of Surgeons at the College's 16th annual assembly in Chicago last month were **Drs. Cecil Newell**, **Houston Price**, **Frank Brannen**, **J. D. Whitt**, and **L. L. Pararo**, all of Chattanooga; **Drs. W. J. Johnson** and **J. U. Speer**, Pulaski; **Dr. A. Fount Russell**, Clarksville; and **Dr. Ray O. Fessey** of Nashville. **Dr. Herbert Acuff**, Knoxville, is President of the College.

**Dr. John B. Youmans**, Dean, Vanderbilt University School of Medicine, presided over the medical session of the Southern Tuberculosis Conference in Chattanooga September 21.

**Dr. Dan R. Thomas**, Knoxville, addressed the Sigma Nu Alumni Club in Knoxville recently.

**Dr. Robert C. Bigelow**, Oak Ridge surgeon, heads the professional division of the local Community Chest drive.

**Dr. John Dougherty**, Knoxville, was the principal speaker at graduating exercises of the second class of Nurses, East Tennessee Baptist Hospital last month.

**Dr. J. Milton Stockman**, Knoxville, was elected President of the Piedmont Proctologic Society at its annual meeting held in August at the Battery Park Hotel in Asheville.

## LOCATION WANTED

"I graduated from the University of Tennessee College of Medicine in December, 1950. I am serving a one year internship in Lima Memorial Hospital (Lima, Ohio), and am to complete the period December 31, 1951. I shall be available in January, 1952. I am licensed in Tennessee.

"I am twenty-seven years old and unmarried. The size and nature of the community is not of the greatest importance to me. I would prefer to find an area that has a doctor who wants an associate, or at least find a place where there is another doctor near by. . . . I plan to take a vacation in two months and look around a bit over the locations available. I thank you very much for your consideration of this matter." (LW-1)

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A 26-year-old physician desiring a location in Tennessee writes us as follows: "I will complete my rotating internship at the John Gaston Hospital, Memphis on November 1, 1951. At that time I will be 27 years of age. I am married, have one child. I am a veteran of World War II with 31 months' service, 19 months of which was spent overseas. My draft classification is 5-A.

I am licensed in Tennessee and would prefer a location in East Tennessee, my birthplace being Knoxville. However, I am open to any location where the need is greatest. I appreciate your sincere interest,

Sincerely,  
LW-2

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"With further reference to locations available for general practice in West Tennessee I shall be happy to give you the information requested.

I was graduated from the College of Medicine, University of Tennessee, in September, 1950 and am now interning at the Jefferson Davis Hospital in Houston. I will finish September, 1951. I am licensed to practice in Tennessee.

I prefer a small town in West Tennessee of approximately three to ten thousand population."

Yours very truly,  
LW-4

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## Physician Wanted

A resident physician in a town within fifteen miles of Memphis advises this office as follows:

"The City of \_\_\_\_\_ is in a very great need of additional doctors. Any help you can give us in solving this situation will be appreciated."

PW-2

Information on physicians and locations available from the Executive Secretary, Tennessee State Medical Association, 504 Doctors Building, Nashville.

## ABSTRACTS OF CURRENT LITERATURE

### **Aureomycin in Trachoma, Shah, M. A. Am. J. Ophth., 34:931, 1951.**

Seventy-five patients were observed for the effect of the drug on the pannus, which was present in all of them. It was used by instillation every two hours and continued for 7 days to 55 days. In all but 2 there was dramatic improvement and the eye became white within 5 to 7 days. Regression of the pannus occurred in only 6; in 69 there was no effect on the pannus but all other symptoms promptly cleared.

(Abstracted by Robert J. Warner, M.D., Nashville, Tennessee.)



### **Calcification of the Vas Deferens: Its Relation to Diabetes Mellitus and Arteriosclerosis. Wilson, J. L., and Marks, J. H. New England J. of Med., 245:321, 1951.**

In 1942, Marks and Ham reported 9 cases of calcification of the vas deferens, demonstrated by roentgenography. Since then an increasing number of patients in the practice of Joslin and his associates have been found with this rather unusual condition. However, it is not a newly discovered condition, as cases found at autopsy have been reported occasionally since 1830.

The first case after diagnosis by roentgenography to be documented in the American literature was seen in the New England Deaconess Hospital in 1939 and reported as one of 9 cases in 1942.

The present publication gives data concerning 60 patients found to have calcification within the vas deferens by roentgenography.

The average age of the group was fifty years. Fifty-six of these patients had diabetes, which had been found at an average age of 33.4 years. Calcification was first noted by X-ray, after an average duration of 18.3 years of diabetes. The two youngest patients in the group were twenty-nine years of age. Each of these had had diabetes for 17 years; one had X-ray evidence of slight arterial calcification and the other none. The latter died within the same year of coronary thrombosis.

Of the 33 patients whose age at the onset of diabetes was less than 40 years, the average duration of the disease was 22 years before calcification of vas deferens was demonstrated.

Of the 23 cases with onset of diabetes after the age of 40, the calcification was demonstrated after an average age of 13 years of diabetes.

Of the 14 patients in whom diabetes had been present less than 15 years before calcification was noted in the vas deferens, 12 had had onset of their diabetes after the age of forty. Conversely, among those 42 patients with diabetes of more than fifteen years duration before calcification was noted, onset of diabetes had occurred before the age of forty in 31 of the 42 cases.

Review of the marital status of the patients shows that 46 of the series had been married, 39 of these having had children. There was no known instance of pregnancy occurring after calcification was noted within the vas deferens of the husband.

Twenty-seven of the 56 patients with diabetes revealed family history of diabetes.

Arterial calcification was present in 53 of the 60 cases, being moderate or severe in 33 cases.

Forty-five of this series are reported to be still living. Among the 15 who have died, 7 deaths were attributed to arteriosclerosis; 6 to fatal coronary occlusion.

The average age of death was 59.4 years. Of the 15 fatalities, 8 were found to have calcified vas deferens within a year of their death. The average duration of life, after calcification was first noted, 2.3 years.

In the discussion, the authors state that they lack the evidence for proving the etiology or pathogenesis of this process. They believe that a more discriminative awareness on the part of roentgenologists and clinicians who examine or treat diabetic patients would result in more frequent recognition of the condition.

In their summary, their opinion is that calcification within the vas deferens represents a relatively specific degenerative complication of diabetes mellitus.

(Abstracted for the Tennessee Diabetic Association by W. C. Crowder, M.D., Maryville, Tennessee.)

## ANNOUNCEMENTS

### **Procedure for Appointment in Regular Navy MC**

Rear Admiral J. B. Logue, (MC) USN, announced by letter on September 21, 1951 that eligible civilian physicians may request appointment in the Regular Navy. Civilian physicians with no present service affiliation and who did not participate in the Army Specialized Training Program (ASTP) desiring commissions in the regular Navy should apply to the Office of Naval Officer Procurement, Federal Building, Cincinnati, Ohio.

It is no longer necessary for the young physician completing his internship to be ordered to appear for written professional examination and to await action thereon before appointment may be affected. Those serving an internship may submit their applications within two months of completion date, but appointments will not be issued until they have satisfactorily completed internship.



### **Release to All County Medical Societies Regarding Warning on Cortogen Acetate Ophthalmic Suspension**

September 20, 1951

Schering Corporation of Bloomfield, New Jersey



has advised the Council office that a shipment of its ophthalmic preparation of cortisone acetate marketed under the trade name Cortogen Acetate Ophthalmic Suspension is contaminated with *Pseudomonas aeruginosa* organisms. Although only one batch of the material may be contaminated, the firm informed this office that telegrams have been sent to all their wholesale and retail outlets as well as to all ophthalmologists in order to effect a complete recall of all shipments of the drug. Physicians who have any Cortogen Acetate Ophthalmic Suspension on hand at this time would be well advised not to administer it to their patients.

R. T. STORMONT, M.D., Secretary  
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DR. VINCENT T. YOUNG is now associated with DR. J. MILTON STOCKMAN, with offices in Doctors Building, Knoxville. Dr. Young comes from Yater Clinic, Washington, D. C., where he was proctologist for five years and consultant at Bethesda Naval Hospital. Practice limited to proctology.

DR. W. D. BURKHALTER, Memphis, announces the removal of his office to 68 South Highland.

DR. K. J. PHELPS has joined the Gordon-Poarch Clinic in Lewisburg. Dr. Phelps received his M.D. degree from Tennessee, 1949. Internship and surgical residency at City Hospital, Mobile.

DR. THOMAS HOYTE CURTIS is now associated with the Woman's Hospital, Chattanooga, in the practice of obstetrics and gynecology.

DR. HUGH B. MAGILL, has returned to private practice in Chattanooga after serving as Depot Surgeon at the U. S. Army Infirmary in Atlanta. Dr. Magill received a certificate of achievement for his outstanding services to the Army.

COMDR. RAYMOND A. WALLACE, Memphis surgeon and gynecologist was called to active duty in the Naval Reserve as Assistant to Rear Admr. J. B. Logue, Medical Officer of the Sixth Naval District at Charleston, S. C.

DR. J. E. JOHNSON has returned to Chattanooga and opened an eye, ear, nose, and throat clinic at 4547 Brainerd Road.

DR. JOE M. MOODY, Dyersburg, has been called to active duty and will report to Camp Gordon, Georgia.

DR. MARGARET WRENN is the answer to the prayers of Van Buren County. Located in a modern clinic building in Spencer, Dr. Wrenn and her registered nurse will bring medical services to this area which has been without a resident physician for many months.



### Surgical Residents Wanted

The Newell Hospital, Inc., Chattanooga 2, Tennessee, has immediate opening for surgical residents. The hospital is an accredited 50-bed general hospital with a large private clinic practice. The resident salary is \$400 per month with maintenance. The Newell Hospital has recently become approved for one-year residency training by the Council on Hospitals of the American Medical Association. Residents can obtain approval from the American Board of Surgery and the American College of Surgeons on a preceptorship basis. Address inquiry to Dr. Edward T. Newell, Jr., c/o The Newell Hospital. The present residency is open until July 1, 1952, at which time three additional appointments will be available. (PW-3)

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# Journal of the Tennessee State Medical Association

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## A Symposium on Heart Disease

*Heart disease is the major cause of death in this country. Its proportion may be expected to increase in coming years with aging of the population. In one way or another heart disease is of importance to every practitioner of medicine whether family doctor or specialist. The preventive measures are in the hands of the family physician—the preventive measures against rheumatic infection, the adequate treatment of early syphilis, the control of obesity, the management of hypertension, treatment of anemias—all can add to the longevity of his patients. So also the family doctor should find the youngsters who suffer from cardiac disease amenable to surgery. Finally, most patients in failure will be treated by the family physician, who should and can provide adequate care, if applied intelligently, with but rarely the need for help from the cardiologist.*

### HEART DISEASE—CLASSIFICATION AND CAUSE\*

LAWRENCE A. GROSSMAN, M.D.,† Nashville, Tenn.

The importance of heart disease to all physicians is obvious when one learns that 55 per cent of the reported deaths in the United States are due to cardiovascular ailments. Recent research in this field has been extensive and has resulted in many significant advances. The objectives of this symposium are: (1) to present a classification of heart disease; (2) to discuss cardiac pain, congestive heart failure and arrhythmias; (3) to outline recent advances in diagnostic methods and treatment. Heart disease is found in all ages, though its type generally varies from one decade to another. The distribution of heart disease according to age group is illustrated in the following diagram (Fig. 1).

#### Heart Disease in Childhood

Relatively little attention is directed to heart disease in the pediatric age group, yet rheumatic heart disease is a major cause of death in these early years. Excluding

accidents, diseases of the heart and blood vessels comprise the major cause of death in ages 5 through 19 years. Rheumatic heart disease and congenital malformations of the heart are the most commonly encountered conditions.

Though very little is known of its fundamental pathogenesis, congenital heart disease is not rare. Apparently hereditary factors influence its appearance; as one might predict, congenital heart disease often occurs in association with other developmental anomalies. The presence of such other anomalies demands additional scrutiny by the physician for malformations of the heart. There is now ample and valid evidence incriminating German measles in the pregnant mother as a responsible agent for congenital cardiac defects in the fetus. This has been further elucidated in that the measles must occur during the first trimester of pregnancy—the period when anatomical development of the fetal heart is taking place. Every effort should be made to protect pregnant women from contact with German measles. But, if during the early months of pregnancy, exposure does occur,

\*Read before the Tennessee State Medical Association, Nashville, April 10-11, 1951.

†From the Department of Medicine, Vanderbilt University, School of Medicine, Nashville.



## VARIOUS KINDS OF HEART DISEASE BY AGE GROUPS

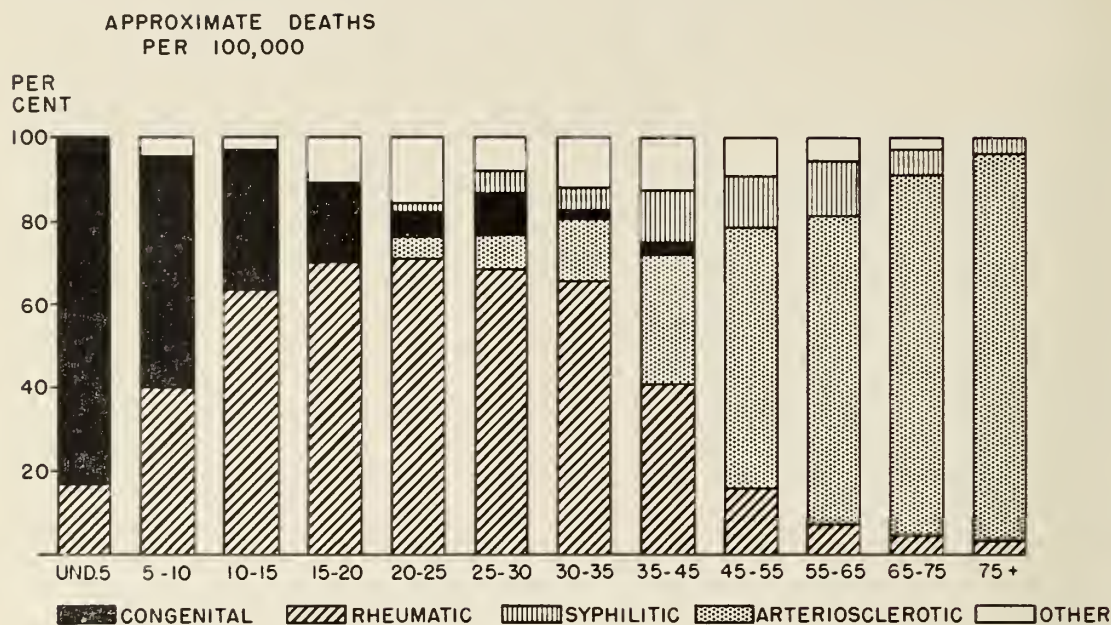


FIGURE 1. [Adapted from Heart Disease Morbidity Survey of Sampson, Geiger, Miller, and Gray (1)]

human immune globulin may be used to prevent it, or to modify it. The question of therapeutic abortion when German measles occurs during the first trimester of pregnancy is now being discussed. Perhaps the most practical approach would be for all young females to have German measles before reaching child-bearing age. Maternal infectious mononucleosis occurring during the first three months of pregnancy has also been shown to be followed by a high incidence of congenital defects of the heart. Congenital heart disease also occurs in less well-defined conditions. The advances in diagnosis and treatment of congenital heart disease have been spectacular. Special study techniques are required. Through methods to be discussed by Dr. Blake, it is usually possible to determine the exact anatomical lesion. Several types of congenital defects of the cardiovascular system, namely, patent ductus arteriosus, coarctation of the aorta, and tetralogy of Fallot may usually be treated successfully if surgery can be employed at the appropriate time.

Though less spectacular, rheumatic fever produces the major problems in childhood heart disease. The etiology of rheumatic fever is still not fully determined, although

several facts are known. This disease usually appears following a group A beta hemolytic streptococcal infection, and there is a high familial incidence. The occurrence of multiple cases in families may be explained possibly on the basis of heredity, or common environment and contagion. In view of the widely accepted relationship of streptococcal infection to rheumatic fever, contagion seems an important factor. Persons of northern European descent—the fair-haired, blue-eyed individuals, with light complexions—seem more susceptible to the disease. Perhaps, as Cheadle stated, “the tendency to acquire rheumatism is inherited.” This relationship of the preceding hemolytic streptococcal infection to rheumatic fever is being continually explored. The close association of scarlet fever and tonsillitis with rheumatic fever has long been known. Antibodies, particularly anti-streptolysins and antifibrinolysins, can be demonstrated in the rheumatic patient. Certainly, there is evidence to convict the streptococcus. From the point of view of seasonal occurrence, Paul has shown that rheumatic fever, scarlet fever, tonsillitis and erysipelas closely parallel one another in incidence.

Recurrences of rheumatic fever follow only after a group A hemolytic streptococcal infection. These recurrences of active myocarditis herald an unfavorable prognosis. They are usually more significant than the type or degree of valvular lesion. For effective prevention of recurrent attacks of rheumatic carditis, it is necessary to prevent subsequent bouts of group A streptococcal infections, especially acute streptococcal pharyngitis. This prophylaxis has been accomplished with some success by the oral administration of sulfadiazine or penicillin in small daily doses, either throughout the year, or from fall to summer, the months when streptococcal infections are more prevalent. In the Vanderbilt University Hospital out-patient department, the rheumatic child receives sulfadiazine (0.5 Gm. t.i.d.) during the entire year. Dr. Thomas Weaver is now evaluating the results of this program. Of interest is the report of Rammelkamp and associates<sup>2</sup> who observed 2,340 patients with acute exudative tonsillitis, and treated half this number with penicillin. In the treated group, only two persons developed rheumatic fever within a 45-day period, whereas in the control group there were 28 cases of rheumatic fever. Thus, it seems advisable to promptly treat all streptococcal infections in every patient, and in the rheumatic individuals all upper respiratory infections should be treated with penicillin, in addition to any other indicated therapy.

With the advent of penicillin particularly, and of other antibiotic preparations, subacute bacterial endocarditis has been transformed from a disease which was hopeless to one with a favorable outlook for recovery. Most therapeutic failures are now due to late diagnosis or inadequate therapy. The diagnosis should be made when a patient with a significant cardiac murmur experiences unexplained fever for more than a week. Embolic phenomena usually are late manifestations, and treatment should be instituted before their appearance. Blood cultures, usually multiple, should be obtained prior to therapy when time permits, but the physician is rarely justified in withholding treatment awaiting the results of the cultures.

### Heart Disease in Middle Age Group

Rheumatic heart disease is also a frequent cause of death throughout early adult life. World War II demonstrated that rheumatic fever can affect adults in epidemic proportion. More than 40,000 men in the armed services contracted rheumatic fever during the war; 50 per cent of all men rejected for military service because of cardiovascular diseases had rheumatic heart disease.

If the graph (Fig. 1) were being prepared today, syphilitic aortitis and aortic insufficiency should constitute a smaller percentage of heart disease in the group age 20 to 45. The advent of penicillin as a non-toxic, specific, antispirochaetal agent, together with more universal treatment in the early stages of syphilis, should prevent cardiovascular manifestations later in life. I predict that the future will find the incidence very greatly reduced; indeed, even now we see less syphilitic heart disease than a decade ago.

There are other less common forms of heart disease that are found predominantly in this age group. They are the heart disease of thyrotoxicosis and of myxedema, myocarditis of various types, pericarditis (mainly tuberculosis), etc.

### Heart Disease in Later Life

The older age group is subject to arteriosclerotic heart disease, or better termed coronary artery disease and its sequellae: coronary insufficiency, angina pectoris, myocardial infarction and heart failure. Many clinicians have viewed coronary arteriosclerosis as inevitable in the aging process. Certainly its incidence seems to increase with the years. However, recent observations show that coronary sclerosis does not bear an absolute relationship to age, nor does coronary sclerosis necessarily parallel generalized arteriosclerosis. Myocardial infarction is being reported increasingly in men below 30 years of age. Dock, some years ago, directed attention to the fact that the intima of the coronary arteries lying in the epicardium is much thicker in males than in females, and that this is demonstrable even in newborn infants. In a post-mortem study of 76 patients, ages 1 to 39, dying of chronic glomerulonephritis, all but



3 had intimal arteriosclerosis.<sup>3</sup> It is not uncommon to see individuals die at advanced ages with little or no arteriosclerosis of the coronary arteries, the aorta or any of its major branches.

The role of cholesterol in the pathogenesis of coronary and widespread arteriosclerosis has received much attention recently. Many observations have incriminated increased blood cholesterol levels with the development of arteriosclerotic changes. Arteriosclerotic plaques in humans are largely composed of cholesterol and cholesterol esters. In the Orient, on diets low in meat and eggs and free of dairy products, aged persons show only minimal, if any, arteriosclerosis. Certain diseases associated with an elevated serum cholesterol are almost invariably accompanied by coronary and generalized atheromatosis. These include congenital xanthomatosis (families with yellow granulomas of the skin and tendons), diabetes, gout, glomerulonephritis and myxedema. Many investigators have found that a majority of patients with coronary arteriosclerosis exhibit an elevation of serum cholesterol. Blood levels of cholesterol rise in obesity and there is evidence of acceleration of atheroma formation. Statistically, obesity seems to enhance the hazard of coronary artery disease. In a study of 80 young soldiers dying of coronary arteriosclerosis, 73 were found to be obese.<sup>4</sup> In Finland during the war years, 1940 to 1946, when the diet was low in both fat and total caloric value, deaths due to coronary sclerosis were reduced by 50 per cent.

Cholesterol is formed by the liver and intestine and is secreted into the bile and reabsorbed from the bowel. The level in the blood does not fluctuate from day to day but does fall slowly when the cholesterol intake is restricted. In order to effect a lowering of the serum cholesterol by a diet low in cholesterol, it is necessary that the diet be also low in fat and that it be rigidly followed for a long period (6 to 24 months). Kempner, with the rice diet, obtained reductions in the serum cholesterol levels. However, individuals and even entire families on cholesterol rich diets may have low blood cholesterol levels (below 200 mg.%). Cholesterol levels are dependent on endocrine

and hepatic control, but usually may be altered by greatly varying the cholesterol and fat intake.

Choline, a lipotropic substance, has been found effective in preventing experimental arteriosclerosis in rabbits. Studies are in progress to ascertain its influence on the course of coronary arteriosclerosis in humans.

The recent work of Gofman<sup>5</sup> in California is undoubtedly the most significant advance in the understanding of arteriosclerosis. He and his co-workers have shown that the transport of cholesterol and other lipids of the serum is in the form of large molecules with varying amounts of protein. They have demonstrated higher concentrations of these cholesterol-bearing lipid and lipoprotein substances in coronary arteriosclerosis, diabetes mellitus, the nephrotic syndrome and hypothyroidism. The blood level of these components is poorly correlated with the usual analytic serum cholesterol determinations. Here, in these macromolecules, the lipoproteins, may lie an important link in the chain of pathogenesis.

In closing, and perhaps as a word of caution to those who might be overenthusiastic in the dietary prescription for their patients, I should like to quote Dr. Howard B. Sprague's examination of Harvard's oldest living graduate—103 years of age.<sup>6</sup> "He is a healthy, spare individual with normal physical findings, except for visual and hearing defects. His electrocardiogram is normal. His wife thus replied to questions about his dietary habits: 'He has an excellent appetite and can eat anything except pork. He eats any strip of fat on meat. He never salts his food at the table as it is well seasoned in the kitchen. He has top milk on cereal, not heavy cream. All his life his breakfasts have been cereal, boiled egg and coffee, but no bread. In his younger days he ate two boiled eggs every morning. His favorite dessert is apple pie, which he does not have very often, and ice cream, which he has once a week.' He has consumed about 56,000 eggs, the most abundant source of cholesterol, without acquiring lethal coronary arteriosclerosis."

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## THE CARDIAC ARRHYTHMIAS\*

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### Definition

The term arrhythmia is of Greek origin—meaning “not measured motion.” It is defined by Dorland as “any variation from the normal rhythm of the heart beat.” It includes, therefore, all the disturbances of the normal cardiac mechanism whether fast or slow, regular or irregular.

### Classification

Arrhythmias may result from abnormal impulse formation or abnormal impulse conduction—or both.

The following classification is used by Friedberg:<sup>1</sup>

- I. Disturbances in impulse formation.
  - A. Sinoauricular (sinus) rhythms (nomotopic rhythm).
    1. With abnormal rate
      - a. Sinus tachycardia
      - b. Sinus bradycardia
    2. With irregular sequence of impulse formation
      - a. Sinus arrhythmia
      - b. Sinus arrest and auricular standstill
  - B. Ectopic rhythms (heterotopic rhythms).
    1. Escape rhythms (nodal rhythm and idioventricular rhythm)
    2. Premature contractions (extrasystoles)
    3. Paroxysmal tachycardia
    4. Auricular flutter
    5. Auricular fibrillation
    6. Ventricular tachycardia
    7. Ventricular fibrillation
- II. Disturbances in conduction of the cardiac impulse.
  - A. Sinoauricular heart block.
  - B. Auriculoventricular heart block (partial and complete).

C. Bundle branch block.

D. Short P-R interval with prolonged QRS.

The arrhythmias are of clinical significance because they are disturbing and a source of anxiety to the patient; a source of danger in themselves—sometimes resulting in sudden death as in heart block and ventricular fibrillation; a cause of congestive heart failure, particularly where heart disease already exists; and may, if not properly evaluated, lead to mistaken diagnoses of angina pectoris or coronary thrombosis.

### Symptomatology

The symptoms produced by the cardiac arrhythmias depend upon the rate and regularity of the heart beat, the duration of the attack, the condition of the heart and the awareness of the patient to sensations.

In general the symptoms are of two types. One group of symptoms arises from a mechanical sensation produced by the heart's action, in which it is said to palpitate, “skip,” “jump,” “turn over,” stop, et cetera. This occurs particularly with premature contractions and auricular fibrillation.

The second group of symptoms is due to alteration in blood flow to vital organs, such as the brain and myocardium, and may result in such diverse symptoms as dizziness, syncope or convulsions, precordial pain, dyspnoea and peripheral shock.

Symptoms are more pronounced at the time of transition from one rhythm to another than during the tenure of the abnormal rhythm itself. Thus, a sudden change from a rate of 90 to 50 may produce more clinical symptoms than an established rate of 35 in complete heart block.

Since the actual time of systole varies

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very little with a fast or slow rate, an increase in the number of systoles per minute, therefore, is at the expense or encroachment of diastolic filling time. Coronary blood flow to the subendocardial part of the left ventricle occurs only during diastole and is, therefore, diminished during a tachycardia, according to Harrison and Resnick,<sup>2</sup> because of the decreased diastolic filling time. In addition, if the rhythm is very irregular, many contractions occur before there is enough blood in the heart to produce a pulse beat. This further adds to the inefficiency of the pumping action of the heart. This extra work, particularly if associated with organic heart disease, may lead to the symptoms of angina pectoris or produce congestive heart failure.

### Diagnosis

An arrhythmia is to be suspected under the following conditions: unexplained syncope; sudden onset of a rapid rate; history of such attacks, with sudden cessation, having occurred previously; presence of an irregularity in the heart's action; rate above 140 or below 40 per minute; congestive heart failure with an unexplained tachycardia; variation in intensity of the first heart sound; a rate that does not vary from minute to minute; and electrocardiographic findings.

The differentiation of the arrhythmias is based upon the history, the physical examination and the electrocardiogram. The electrocardiogram has been the key to the clinical understanding of the cardiac irregularities, the study of which was initiated by pulse wave studies.

Its help is indispensable in some instances; e.g., in determining that slowing of the ventricular rate in auricular flutter is not merely a ventricular slowing due to increase in auriculoventricular ratio while flutter of the auricles continues. It is extremely helpful in the important recognition of ventricular tachycardia and disturbances in conduction through the A-V node and bundle of His.

It is not infallible since some cases of paroxysmal auricular tachycardia, auricular flutter with 2:1 block, and nodal tachycardia may not be differentiated even with its help.

Likewise, confusion may exist in the presence of auricular tachycardia with alteration of the QRS complexes from fatigue, cases of nodal or auricular tachycardia with bundle branch block, and ventricular tachycardia.

An electrocardiogram is always desirable, at times indispensable, but there are times when it is unavailable and one must be prepared to proceed without its help.

From the viewpoint of their disturbance to the patient, their frequency and, in many instances, their effect on cardiac function, the ectopic tachycardias are the most important. These consist of paroxysmal auricular or nodal tachycardia—sometimes grouped under the undesirable term of supraventricular tachycardia; auricular flutter; auricular fibrillation; and ventricular tachycardia.

A *sinus tachycardia* is rarely above 140 per minute. The onset and cessation are gradual rather than abrupt. The rate varies from minute to minute and is influenced by vagal stimulation, such as deep breathing or exercise. A cause, such as an acute infection, anemias, hyperthyroidism, abdominal distention, or pneumothorax, is frequently recognizable as the cause of the tachycardia. It is important to distinguish this fast, but otherwise normal sinus rhythm from other arrhythmias, since treatment with digitalis and quinidine is without effect, and their use in this condition is to be deplored.

*Paroxysmal auricular tachycardia* should be suspected when a patient gives a history of repeated attacks of sudden acceleration of the heart lasting for varying lengths of time and stopping as suddenly as it began. In approximately 50 per cent of cases the heart is found to be clinically normal. In the other 50 per cent the condition is associated with rheumatic, hypertensive, arteriosclerotic heart disease, or with toxic conditions such as thyrotoxicosis and infections.

The rate of the heart in paroxysmal auricular tachycardia varies from 140-220, averaging 160-180 per minute. Its absolute regularity is an important clinical sign. It is to be differentiated from auricular flutter and ventricular tachycardia. This can fre-

quently be done by two signs: one mentioned above, absolute regularity from minute to minute as long as the arrhythmia persists, and the second is its conversion to a normal sinus rhythm by carotid sinus pressure. Failure to respond to this procedure does not exclude this arrhythmia since it is successful in only 50 per cent of the cases.

Usually considered a benign condition, auricular tachycardia may give rise to serious consequences in a damaged heart or may even lead to failure in a normal heart when unduly prolonged at an exceptionally fast rate.

*Auricular flutter* is particularly challenging because it is frequently associated with organic heart disease, especially the arteriosclerotic type; because it frequently precipitates congestive failure; and because in some cases it is so resistant to therapy that it demands all the ingenuity of the physician.

While usually regular in rhythm with a rate ranging from 140-180 per minute with a 2:1 auriculoventricular ratio, this ratio may vary so frequently that the rhythm is irregular enough to suggest auricular fibrillation. The chief clinical feature is the fact that the rate is temporarily slowed by carotid sinus pressure, but usually returns to the previous level whether pressure is maintained or not. The slowing is not due to any effect on the flutter mechanism, but to an increased auriculoventricular block, so that the auriculoventricular ratio is increased from 2:1 to 3 or 4:1. Obviously in the higher degrees of block such as 4:1 the ventricular rate may be normal and the presence of flutter may not be detected, except by the electrocardiogram, although at times auricular waves in the filled neck veins may be recognized.

*Auricular fibrillation* is usually the easiest of the tachycardias to recognize because of its absolute irregularity. The faster the rate the more pronounced the irregularity, while sometimes a slow fibrillation with a rate of 50-60 may seem almost regular. This arrhythmia does occur in the absence of heart disease but rarely so, while it is estimated that 60 per cent of patients with congestive heart failure fibrillate—particularly

those with arteriosclerotic heart disease, rheumatic mitral disease and hyperthyroidism. In fact, the latter condition should always be suspected where no other explanation is forthcoming.

The chief sources of diagnostic confusion in patients with auricular fibrillation are those cases with multiple extrasystoles and those with flutter and a changing auriculoventricular ratio.

*Paroxysmal ventricular tachycardia* rarely occurs, except in organic heart disease, usually as a complication of coronary thrombosis. It is particularly dangerous since it may be a forerunner of ventricular fibrillation. It is fundamentally regular, usually between 160 and 200 beats per minute. Levine<sup>3</sup> has pointed out that on careful auscultation a slight irregularity in rhythm and change in intensity of the first heart sound may be noted. This, together with no response to carotid sinus pressure, helps to distinguish it from paroxysmal auricular tachycardia and flutter.

#### Treatment

It is to be emphasized that the effectiveness of any drug or procedure used in treating a condition that starts and stops quickly, at times without treatment, is difficult to evaluate. When, in addition, many measures have had their limited use their evaluation is almost impossible.

A partial list of the measures used in treating the cardiac arrhythmias follows:

- I. Stimulation of the Parasympathetic System by
  - A. Reflex vagal stimulation—carotid sinus pressure, ocular pressure, gastric or respiratory stimulation,
  - B. Parasympathomimetic drugs—acetyl-beta-methylcholine, neostigmine, etc.
- II. Stimulation of the Sympathetic System by
  - A. D r u g s—epinephrine, ephedrine, neosynephrine, benzedrine,
  - B. S u r g i c a l Measures—injection, ganglionectomy, sympathectomy.
- III. Quinidine.
- IV. Digitalis.
- V. Others—atropine, procaine, pronestyl K, Ca, and Mag. salts, barium chloride.



The majority of these measures are used primarily in treating the ectopic tachycardias. The exceptions are atropine, the sympathomimetic drugs and barium chloride—all of which find their major use in the treatment of arterioventricular block. Atropine in effective doses is frequently of great help when the block is due to the depressing action of the vagus.

The epinephrine and related compounds are sometimes used as supportive measures in the treatment of shock accompanying the tachycardias, as well as for their effect as a ventricular stimulant.

*Vagal Stimulation.* In the treatment of the ectopic tachycardias the first measure to be tried is reflex vagal stimulation. This is easily accomplished by carotid sinus pressure. If this fails, ocular pressure, stimulation of vomiting by ipecac, stimulation through the respiratory tract by the Valsalva and Muller procedures, stooping or lying down, or pressing on the abdomen may be used.

Carotid sinus pressure, when effective, stops the attack of paroxysmal auricular tachycardia. It is of great diagnostic significance in auricular flutter since, if the rate is suddenly reduced while pressure is being applied and immediately returns to its original level, it is highly suggestive of that rhythm. It has no effect on auricular fibrillation, and is generally held to be ineffective in ventricular tachycardia. This procedure has the advantage of being simple to carry out, short in its action, and without general effect on the parasympathetic system. It has been estimated<sup>4, 5</sup> to be successful in from 10 to 50 per cent of cases of paroxysmal auricular tachycardia.

When this measure fails, the stimulation of the vagus by drugs may be tried. The most commonly used of these is acetyl-beta-methylcholine,<sup>6</sup> effective when given in doses varying from 2.5-60 mg., averaging about 25 mg. It is wise to start with small, subcutaneous doses and increase the dose every 15-20 minutes until the desired result is obtained. It is a powerful choline ester and may result in a severe drop in blood pressure, fainting, vomiting, involuntary defecation and collapse. Its action is readily blocked by atropine and this should always

be available in a syringe for intravenous administration in a dose of 0.5-1 mg.

Neostigmine is of sufficiently proven worth to be used more than it has heretofore. It frequently enhances the effectiveness of carotid sinus pressure.

*Quinidine.* Because of its action in increasing the refractory period of cardiac muscle quinidine is an extremely valuable drug in treating the cardiac arrhythmias. It has been considered a drug associated with more than the usual hazards of drug therapy and the use of a "test" dose to see whether any serious complications would be forthcoming persists to the present day. This is unfortunate since unquestionably many of the complications blamed on the drug were due to the disease being treated, and thus has caused timidity in both decision to use it and in choosing the size of dosage to use. Lack of success, therefore, has frequently resulted from inadequate dosage. Much work has been done in recent years in appraising its biological action<sup>6</sup> and clarifying the indications for its clinical use.<sup>7</sup>

The only absolute contraindication to its use is a history of sensitivity to the cinchona compounds.

The relative indications for its use depend upon many factors, such as the type of arrhythmia, its duration, the presence or absence of underlying heart disease, and the presence or absence of congestive heart failure.

Once decided upon, one should be prepared to push the drug to the point of effectiveness or to tolerance. The former is indicated by control of the arrhythmia; the latter by toxic symptoms. These consist of cerebral symptoms with dizziness and ringing in the ears, and gastrointestinal symptoms with nausea and vomiting. They usually are related to the size of the dose, but in unusually susceptible individuals may occur with very small amounts.

Like digitalis, the drug is given with a view of producing a desired effect, rather than by rule of thumb amounts. Unlike digitalis, the effect depends upon the size of the individual dose and consequent concentration, rather than a cumulative effect. If the desired effect is not produced after sev-

eral doses of the same size, the individual dose must be increased or the interval between them shortened.

Quinidine is preferably administered by mouth, since it is promptly and almost completely absorbed from the gastrointestinal tract. When this is not possible, preparations are available for intramuscular injection, which is preferable to the intravenous administration.

Quinidine is of outstanding value in the treatment of ventricular tachycardia, a condition in which digitalis is generally considered contraindicated. Its use in auricular fibrillation is based on the desire to convert it to a regular rhythm. This is deemed unwise in the presence of long standing fibrillation, cardiac enlargement or congestive failure, and is usually unsuccessful in hyperthyroidism until the underlying disease has been treated. It is of proven value in the prevention and treatment of auricular tachycardia and auricular flutter, but its use as a first choice depends upon existing conditions, as well as the preference of the administrator.

*Digitalis.* This drug is of established benefit in all of the ectopic tachycardias, except ventricular tachycardia, where it is contraindicated. Since congestive failure is the indication supreme for digitalis, its presence or likelihood is frequently the determining factor in deciding between digitalis and quinidine.

Digitalis has two actions on the heart. The first is an effect on the rhythm of the

heart brought about by vagal effects and by direct action on the conduction tissues, and the second a direct effect on the heart muscle. The first action is the cause of effectiveness in controlling arrhythmias and the second for the increased efficiency as a pump. Its value is readily seen, therefore, when an arrhythmia exists in the presence of congestive failure.

While many different digitalis preparations exist, there is no evidence that the whole leaf or a purified preparation has a specific action that cannot be obtained by comparable dosage from any one of the others.<sup>8</sup> The choice of one over the other is based, therefore, on the speed of action and the rate of excretion, in case that toxicity ensues.

The digitalizing dose, intravenously and by mouth, the daily maintenance dose, speed of action, maximum effect, relative toxicity and duration of action of some of the more commonly used digitalis preparations are shown in the following table.

Digitalis is of definite value in treatment and prevention of auricular tachycardia, but is not the treatment of first choice because the condition usually responds to simpler measures.

It is the drug of choice by many in auricular flutter. Present day opinions question the necessity of stopping digitalis at the onset of fibrillation, as described in the "classic" treatment of Lewis.

Digitalis is used in the treatment of fibrillation when the aim is to slow the

Digitalis Preparations

Preparation		Digitalis Leaf	Digitoxin	Digoxin	Lanatoside C (Cedilanid)	Ouabain
Digitalizing	i.v.	0	1. mg.	-1. mg.	1.5 mg.	.8-1 mg.
Dose	Oral	1-1.8 Gm.	1-1.8 mg.	2.5-5.0 mg.	5-10 mg.	0
Daily Maintenance						
Dose	(Oral)	.1 Gm.	.15 mg.	0.25-1.25 mg.	1-1.5 mg.	0
Speed of Action		Slow	Rel. slow	Rapid	Rapid	Very rapid
Maximum Effect		24-48 hrs.	6-10 hrs.	1-3 hrs., i.v.	1-2 hrs., i.v.	½-2 hrs.
Toxicity		Great	Great	Low	Low	Low for single dose
Duration of Action		Long 2-3 weeks	Long 2-3 weeks	Mod. short 1-3 days	Short 3-6 days	Short 24-72 hrs.



ventricles and not to attempt a reversion to a normal rhythm. It is to be stressed that digitalis has no effect on the auricular fibrillation. It merely slows the ventricular rate by its action in decreasing A-V conduction.

A new drug, pronestyl, offers much promise in controlling premature ventricular beats and ventricular tachycardias.<sup>9</sup> This drug is a procaine derivative and was developed in a search for a drug having a longer quieting effect than procaine on the myocardium during surgical procedures on the heart. It is available for both oral and intravenous administration.

In concluding, thought should be given to the situation when one is confronted with the presence of an ectopic tachycardia, and the inability to make an exact diagnosis. The course of procedure is to use either quinidine or digitalis and capable opinions<sup>10,11</sup> support the use of either drug as first choice. A safe guide in choosing one over the other is based on two considerations: If ventricular tachycardia is suspected, digitalis is contraindicated and quinidine is the drug of choice; if congestive heart

failure is a clinical problem, digitalis is preferred because of its additional beneficial effect in myocardial failure.

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## MODERN CONCEPTS IN DIAGNOSIS AND TREATMENT OF CONGESTIVE HEART FAILURE\*

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Whenever, in the course of disease, circulatory congestion is present and the heart is unable to pump sufficient blood to the tissues to satisfy the needs of the body, congestive heart failure exists. The symptoms that follow are the result of two physiological abnormalities:—a departure from the normal pressure-flow relationships in the cardiovascular system, and disorders in salt and water metabolism. In this presentation, I shall discuss the pathogenesis of congestive heart failure, its diagnosis and treatment.

### Pathogenesis

In failure, there are two basic reasons the heart does not deliver to the arteries

suitable amounts of blood under proper pressure. Either the inflow rate is inadequate to fill it properly in diastole or the work of expulsion is inadequately performed. The classical studies of Starling and his-coworkers developed the basis for the modern concept of the cardiodynamics of the failing heart. The "law of the heart" states that the mechanical energy set free during cardiac contraction depends on the resting length of the muscle fibers, i.e., during diastole.<sup>1</sup> From this concept is derived the physiological definition of congestive heart failure as that state in which the normal mechanical work of the heart cannot be maintained unless oxygen consumption of the heart muscle increases and venous pressure rises. The latter increases diastolic filling of the heart and thereby increases the length of the resting heart fiber and an

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increased work potential. But it is important to note that although increased diastolic filling leads to increased amounts of energy, made available with each beat, and that therefore the work of the normal heart increases automatically if the heart dilates, there is a point of dilatation, however, beyond which increased work does not ensue. On the contrary, decreased work and decreased cardiac output result. Within a very short time after reaching that degree of dilatation beyond which the output of work decreases, the heart fails.

Most physiologists and clinicians have supported either the "forward" or the "backward" failure concepts as the fundamental mechanism of congestive heart failure. The more recent trend is toward a combination of both concepts, with some factor or factors as yet unknown as the actual fundamental mechanism involved. Those clinicians favoring the "forward" failure theory believe that heart failure is that state in which the volume of blood circulated per unit of time is not adequate for that period. When the peripheral tissues receive an inadequate supply of blood, the kidney begins to retain salt, hydremia, edema and congestion occur. Thus we have the syndrome of congestive heart failure with edema. In forward failure, as in ventricular fibrillation, the heart simply fails to propel blood. Where myocardial ischemia is present there may be symptoms of both backward and forward failure, but terminally it is always the failure to propel blood that produces death. The predominating symptoms before the terminal state, however, are usually due to backward failure.

The "backward" failure theory ascribes the three major manifestations of congestive heart failure,—cardiac enlargement, diminished vital capacity with dyspnea (due to failure of the left side of the heart) and increased venous pressure with visceral congestion (due to failure of the right side of the heart),—primarily to an accumulation of blood in the vascular areas which drain toward the failing chambers of the heart.

When the work load of the heart exceeds normal capacity the muscle fibers lengthen, producing dilatation of the chambers. The

process of dilatation usually is slow and at first, for a short period, results in a greater systolic liberation of energy. Temporarily, this permits the heart to carry its load more efficiently. However, in time, with further lengthening of the muscle fibers, a point is reached where efficiency lessens and systolic ejections can no longer keep pace with diastolic filling, and then congestive failure follows.

It is important to recognize that although the velocity of blood flow is diminished in patients with heart failure, the volume of flow is not necessarily correspondingly decreased. On the contrary, the volume of blood in the pulmonary and venous systems is increased in congestive heart disease. The speed of circulation of blood is markedly decreased, but because of the increased size of the stream bed the total blood flow per unit of time may be maintained.

As a result of these conditions, according to the "backward" failure theory, the veins and the capillaries become engorged and there is an increase in venous or intracapillary pressure. This increase in pressure gives rise to most of the clinical phenomena of congestive failure. Thus, there results an increased transudation of fluid into the tissues, a result of venous (pressure) obstruction. The prerenal deviation of fluid and electrolytes into the extracellular fluid space is followed by a decreased excretion of sodium, chloride and water. Clinically, this accumulation of fluid in the tissues is manifested first by a gain in weight or occult edema, and later by the pitting dependent edema of congestive failure. The majority of clinicians and physiologists have for a long time supported this backward failure theory. The opposite viewpoint, advanced by the proponents of the "forward theory," is that all the phenomena of cardiac failure are the result of decreased cardiac output and inadequate blood flow to the tissues.

Recently there has been considerable criticism of the "backward failure" theory, and much of the criticism has had impressive experimental support. One fact noted is that tall persons whose venous pressures are 10 to 15 cm. higher in their feet than in short subjects are not more prone to develop



ankle edema.<sup>2</sup> It has also been demonstrated that ligation of the inferior vena cava often results in an elevation of the venous pressure in the legs to more than 600 mm. of mercury without the development of clinically perceptible edema. Similarly, it has been noted that although intracapillary pressure in the feet of a man standing is greater than that in the arteries of the arms, clinical evidence of edema is usually absent or mild even after the subject has been standing for a prolonged period. From these facts, it is concluded that simple elevation of venous pressure is not the cause of edema in congestive heart failure. Starr induced right ventricular failure in anesthetized dogs by acute coronary occlusion and by massive thermal injury to the myocardium, and in neither condition was there a rise in venous pressure. He also showed that venous hypertension in cardiac patients persisted after death.<sup>3</sup> He concludes from these and other considerations that salt retention in congestive heart failure is due to some other factor than increased venous pressure and may be a result rather than the cause of edema. Burch<sup>4</sup> cites additional observations which are difficult to explain by either the forward or the backward theory. He points out that:—the clinical condition of the patient with congestive heart failure may vary independently of demonstrable changes in venous pressure; the protein concentration of the edema fluid in congestive heart failure is not elevated, a fact which is not compatible with increased capillary permeability; there is no correlation between the plasma proteins and the degree of congestive failure; both mercurial diuretics and salt-poor diets have extracardiac actions, yet these effect remissions in congestive failure. And finally, it has been well established that the decreased cardiac output of chronic congestive failure is accompanied by marked reduction in renal blood flow and glomerular filtration.

While the above criticism of the old theories of heart failure cast doubt upon their validity, they do not, per se, establish the validity of any other theory. Rather do they constitute a challenge to better understanding of the pathological physiology involved. We have seen that the mechanism

of congestive heart failure is still controversial and that further intensive investigation is required. This is going on and already has revealed in a new light the importance of alterations in renal function in relation to circulatory failure. These observations indicate that the factors concerned with failure are probably quite complex and perhaps related to chemical agents, such as hormones and enzymes. Disturbed renal function almost always accompanies congestive failure. Increased concentration of urine together with casts, blood and albumin are common findings. Careful studies of the kidney during congestive failure indicate that altered renal function and reduced excretion of urine are preceded by a diminution of renal blood flow. The action of mercurial diuretics is mainly renal. And it is certain that in congestive heart failure it is extracardiac. There can be no doubt that the degree and course of congestive heart failure are tremendously influenced, if not conditioned by, changes in renal function. The role of glomerular filtration and the degree of tubular reabsorption of water and sodium, and perhaps other substances, are factors of the first magnitude. Restriction of sodium results in improvement and its administration causes intensification of congestion and edema.

### Diagnosis

The recognition of congestive failure depends upon the occurrence of a heart lesion accompanied by dyspnea and edema. Dyspnea and edema not due to cardiac disorders must be recognized. In young people, heart failure almost invariably will be associated with cardiac enlargement and with murmurs and the diagnosis is not difficult. In elderly patients, the heart may be only relatively (with relation to previous size) or slightly enlarged and the decision that heart disease exists may be quite difficult. The following considerations are not applicable in every instance, but will be useful generally:

1. If outspoken cardiac enlargement exists, it is highly probable that coexistent dyspnea and edema are of cardiac origin.
2. If the size of the heart is normal, and if constrictive pericarditis can be excluded,

it is not likely that dyspnea and edema are of cardiac origin.

3. The presence of a normal or rapid arm-to-tongue circulation time practically excludes cardiac failure due to common causes, but does not exclude cardiac failure of the high-output type due to thyrotoxicosis and thiamine deficiency. Diminished vital capacity, which may be due to almost any type of extensive pulmonary disease as well as to congestion, does not constitute proof that dyspnea is of cardiac origin. When edema is increasing or is stationary, a normal level of venous pressure makes it unlikely that cardiac failure is the cause. An elevation of venous pressure that is present both in the arms and the legs indicates that edema is of cardiac origin, provided that renal disease and excessive sodium intake can be excluded as possible causes. Normal levels of venous pressure do not exclude left-sided heart failure as the cause of dyspnea.

4. The demonstration that digitalization causes a rise in vital capacity and reduction in pulmonary circulation time indicates that dyspnea is of cardiac origin.

5. Enlargement of the liver should not be attributed to congestive failure except when there is increased venous pressure.

6. The presence of gallop rhythm or pulsus alternans indicates that heart failure is imminent if not already present.

Once the diagnosis of congestive heart failure is established, one should determine to what extent it has progressed. This is of practical importance because prognosis and management differ in various stages. In the types of heart disease which lead to congestive failure, the progression of developments may be indicated by the following terms: (1) diminished cardiac reserve, (2) left-sided congestive failure, (3) right-sided congestive failure. Of course it is of the greatest importance to recognize, before the advent of cardiac embarrassment, those individuals who are under the threat of the development of heart disease (patients convalescent or "recovered" from rheumatic fever, patients with hypertension or syphilis, etc.) and those with definite but asymptomatic heart disease.

The term *diminished cardiac reserve* is

used to indicate that a patient with heart disease is entirely free from symptoms at rest but suffers abnormally from shortness of breath upon the performance of exercise. *Left-sided congestive failure* frequently occurs in a pure form and may antedate right-sided failure by months or years. It is characterized early in its development by exertional dyspnea and eventually by dyspnea at rest, rales at the lung bases, a decline in vital capacity and prolongation of the pulmonary circulation time. *Failure of the right heart* with venous distension, increased venous pressure, enlargement of the liver and a generalized edema is the next development. While it is exceptional to find a case of right-sided failure without associated manifestations of left-sided failure, many patients have left-sided failure without impressive clinical evidence of right-sided failure. In this connection, it should be emphasized that the absence of rales does not preclude the presence of pulmonary congestion. Actually, rales are a sign of pulmonary edema, and a high degree of congestion as indicated by reduction in vital capacity and prolongation of circulation time may exist in the absence of rales. Dyspnea occurring in the resting state, when due to cardiac disease, is a clear indication of congestive heart failure even though evidence of systemic engorgement may be completely lacking.

Although the major manifestations of congestive heart failure are shortness of breath and edema, there are others which are often of great importance. These are fever, cough, nausea and vomiting. Fever of slight degree is often present and is probably related to disturbed dissipation of heat. A temperature rise of more than two degrees Fahrenheit should lead to the suspicion of infection, venous thrombosis or infarction. The most common infections are those of the respiratory tract, but in persons with rheumatic heart disease either a flare-up of the rheumatic condition or bacterial endocarditis are common causes of fever. (It is well to remember that the oral temperature is notoriously inaccurate in the dyspneic individual.)

Cough is usually the result of pulmonary congestion or edema, but may result from



pulmonary infarction or infection. It is a common complaint and is important because of the energy expended and its deleterious effect on the circulation.

Nausea and vomiting due to congestion of abdominal organs may be so extreme as to suggest the presence of an organic gastrointestinal disorder. However, digitalis and opiates used in treatment commonly are responsible.

The progressive stages or degrees of congestive heart failure have been discussed. The transition from one stage to another may be gradual, but frequently it is abrupt. In many cases increased severity of failure is precipitated by factors leading to increased cardiac work, some of which can be prevented or cured. Almost any type of febrile illness is likely to aggravate cardiac disease and to bring about an increase of congestive failure when it is present. Because of their frequency, infections of the respiratory tract assume first importance. Second only to infections, over-exertion, emotional upset, cough, and especially the development of cardiac arrhythmia are all important factors. Clinical experience indicates also that anxiety, worry, fear and similar emotional reactions are potent factors in the aggravation of cardiac disease, and in hastening the development of congestive failure. Indeed, any condition, whether it be infection, exertion, emotional stimulation or the development of an abnormal cardiac rhythm, which produces prolonged, sustained tachycardia, may either precipitate or increase the severity of congestive heart failure.

Obesity is a condition that increases the work of the heart and it can be successfully treated. Also susceptible to treatment are most cases of anemia which, when severe, cause tachycardia and an increase in cardiac output. Pregnancy is a crucial period for the cardiac patient and in persons predisposed may precipitate congestive failure either before or after delivery.

#### Treatment

In the treatment of congestive heart disease two lines of action are indicated:—first, the control of the underlying disease processes if this is possible, and second, the

relief of heart failure. The fact must be faced that, with the exception of syphilis, we are unable to prevent the chief causes of heart failure at the present time. We can only utilize the modifying influences now available, such as careful management of streptococcal infection in patients who have had rheumatic fever with the employment of prophylactic, seasonal sulfadiazine or penicillin therapy; the control of obesity; the prompt recognition of thyrotoxicosis, anemia, etc. Therefore, as matters stand, effective management of cardiac patients consists of treatment that prevents, alleviates or controls congestive failure. This is accomplished by bending every effort to the improvement of cardiac efficiency and by controlling the sodium and water content of the body. Cardiac efficiency is improved by restricting physical activity in order to reduce the work load of the heart and by the administration of digitalis. The prevention of sodium and water retention is accomplished by sharp restriction of sodium intake and the use of diuretics, especially the mercurial diuretics. Let us consider in some detail these four pillars of management of congestive heart failure, viz., limitation of activity, digitalis, restriction of sodium intake and the use of mercurial diuretics.

To what extent activity should be limited is determined by the evaluation of the individual case as to,— the stage to which congestive failure has progressed, the response of the patient to treatment, the psychological problems involved. The modern concept favors limiting activity to a degree at which respiratory symptoms do not occur. Those women who are ordinarily sedentary can usually tolerate longer periods of bed rest than men. Clinical experience has brought to light the grave disadvantage of complete, prolonged bed rest as formerly advocated. The two principal dangers are an increase in pulmonary congestion and an increased tendency toward phlebothrombosis and pulmonary embolism. A practical point to remember is that so-called rest in bed with the mandatory usage of the bed-pan, may call for a good deal more work and stress for some patients than is occasioned by the use of the bedside commode or the lavatory.

It should be understood that the function of digitalis is to improve cardiac efficiency and that the presence of congestive failure constitutes the chief indication for its use. Digitalis is most beneficial when symptoms are due either to impaired myocardial function or to auricular fibrillation or to both. The chief contraindication to the administration of digitalis in congestive heart failure are the manifestations of overdosage, the most common being nausea, vomiting and ectopic heart beats.

The third therapeutic pillar is the drastic limitation of sodium intake. In many patients it must be reduced to 150 to 200 mg. per day, and in any case it must be marked enough to produce the desired results. In addition to a diet very low in sodium, the water ingested should be poor in sodium, and all drugs containing sodium should be avoided. It is possible that with the use of ion-exchange resins, which is still in the experimental stage, the patient with congestive failure may be given an almost unrestricted diet with comfort and safety.<sup>5</sup> It is well to point out that sodium restriction, when prolonged, leads to a depletion of the sodium stores of the body and a clinical state somewhat resembling Addison's disease, characterized by weakness and anuria. Under such circumstances, the administration of sodium is indicated. It is possible that sodium restriction and the use of mercurial diuretics result not only in sodium depletion but occasionally to potassium depletion also.

The drastic restriction of water in congestive heart failure is now known to be unnecessary and undesirable. The thirst of a patient on a low salt regime is less than that of a person on a normal diet. Three litres of fluid per day is a generous allotment.

Mercurial diuretics promote the excretion of water and sodium by the kidneys. An organic mercurial diuretic, more than any other agent, can reverse the tendency of the patient with congestive heart failure to retain fluid and salt and thus accumulate edema. The exact mechanism of diuresis is unknown. It seems probable that the diuretics act directly on the kidneys, decreas-

ing the absorption from the glomerular filtrate by the proximal tubules of sodium and water. They do not alter renal blood flow or glomerular filtration. They are indicated in all stages of congestive heart failure, but especially when the symptoms fail to respond to rest, digitalis and the limitation of sodium.

Mercurial diuretic therapy is essentially symptomatic and therefore should be administered according to the patient's needs. Dosage and frequency of administration depends upon many factors, including salt, fluid and food intake, physical activity, the state of renal function, the site of edema accumulation and the type and severity of the underlying heart disease.

Only rarely does a patient react unfavorably to the administration of mercurial diuretics, such reactions being either immediate or delayed. Immediate reaction at the time of injection can be minimized if the mercurial is given in the vein slowly and intermittently. The risk may be avoided completely by intramuscular injections or by treatment with preparations which may be given subcutaneously.

In this discussion, I have emphasized the more important features of the pathogenesis, the diagnosis and the treatment of congestive heart failure. In closing, I shall cite an observation by Harrison, which is encouraging and of great practical importance: The condition of a patient with congestive heart failure is never hopeless so long as life remains.

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## LABORATORY AIDS TO DIAGNOSIS IN HEART DISEASE\*

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### Introduction

In recent years several procedures have been devised that permit more basic and physiologic study of diseases and malformations of the heart. The results of their use have played a prominent part in the development of improved methods of diagnosis, prognostication and therapy. This has been especially manifest in the surgical approach to congenital heart disease, and the more rational methods now used in the management of congestive failure.

### EKG and Fluoroscopy

After the history and physical examination, electrocardiography and fluoroscopy are still the procedures most likely to give additional information of value in the diagnosis of most cases of heart disease. Not so long ago both of these involved bulky, complex and expensive equipment, and were generally available only in diagnostic centers. Now fluoroscopes and electrocardiographs have become common pieces of equipment in so many private offices that their use is accepted as routine. Because they are so well known, we merely mention them here.

### Cardiac Catheterization

Cardiac catheterization has probably been the most impressive and useful of the new procedures. Catheterization of the right heart was first done in a human by Forssman who catheterized his own heart in 1929. Now, especially since Cournand's refinements of the technique in the early forties, it has taken its place as a diagnostic and research procedure in many medical centers throughout the world. Perhaps its greatest usefulness has been found in the field of congenital heart disease. It certainly is here that its chief interest and value to the average clinician lie.

The technique of the procedure is as fol-

lows. Since it is essentially painless, the only preparation necessary is moderate sedation, and this can be accomplished very satisfactorily with small doses of morphine and barbituates. Several doses of quinidine may be given during the night before, as a prophylactic measure against arrhythmias. It is preferable to have the patient admitted to the hospital, though catheterization can be done as an out-patient procedure.

The patient lies supine on the fluoroscope table where he is encouraged to relax, talk or sleep, and generally put himself as much at ease as possible. A tributary of the median basilic vein in either antecubital fossa is exposed under local procaine anaesthesia, a nick is made in the vein, and the catheter—through which heparinized saline is dripping slowly—is inserted. (The catheters used are long woven ones, 6F to 9F in size, similar to those used for ureteral catheterization except that the tip is slightly curved and contains an electrode by means of which ECG leads from within the heart may be made.) Under direct fluoroscopic control the catheter is advanced slowly up through the brachial and axillary veins, down the superior vena cava into the right auricle, and thence through the ventricle and out into a branch of the pulmonary artery. The whole procedure thus far is usually the work of only a few minutes.

With the tip of the catheter in the pulmonary artery, measurements are begun. Depending on the suspected lesion, one or several samples of blood are drawn, under oil, from various sites in the pulmonary artery for determination of their oxygen concentration. The catheter is then connected by means of a malleable lead tube to a manometer. For this an electronic recording manometer is used to convert variations in hydrostatic pressure into electrical impulses and can be calibrated very accurately over a wide range. These impulses are recorded in one channel of a 4-channel direct-writing galvanometer. Simultaneously with the pressure tracing, which can be read directly in millimeters of mercury.

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are recorded a pneumogram and two leads of the electrocardiogram, or other variables as the case may require. This procedure of obtaining pressure determinations and/or samples of blood for oxygen content is repeated in the right ventricle, right auricle, superior vena cava, inferior vena cava, and in any other chambers or vessels which may be entered fortuitously, as through a septal defect. The catheter is then withdrawn, the vein ligated, the skin closed with interrupted silk sutures, and a sample of blood is obtained from the femoral artery for oxygen content. In addition to the oxygen and pressure values already mentioned, some information is obtained by observing the course of the catheter. Also, if oxygen uptake has been measured, the cardiac output can be calculated by application of the Fick principle.

In experienced hands the whole procedure is usually uncomplicated; some investigators have done many hundreds of consecutive catheterizations without serious incident. Perforation of a vein or heart chamber, air embolism, and thrombosis following trauma to the endothelium are potential hazards. The first of these is rarely, if ever encountered since the catheter is very flexible and it is a cardinal principal never to force it against resistance. Air embolism is extremely rare. Though small thrombi do sometimes form, as observed in experimental animals, it is doubtful that any serious consequences ever occur clinically. The chief danger is arrhythmia, especially ventricular tachycardia. Since ectopic beats from various foci occur inevitably in every catheterization, they must be watched for very carefully. These ectopic beats result most often from contact of the tip of the catheter with a sensitive point on the surface of the endocardium, usually in the right ventricle, and almost always stop as soon as the catheter is moved. The cardiac rhythm is observed by one member of the team throughout the procedure on a continuously recording ECG and the operator can thus be warned at the onset of any serious arrhythmia and corrective measures instituted immediately. Arrhythmias can easily be missed by the fluoroscopist who is necessarily primarily concerned with manipulation of the catheter.

The case of H.B., VUH #194,857, can be taken as an example of the usefulness of this technique in helping to establish a specific diagnosis. A patent ductus arteriosus was suspected, but the character of the murmur left some doubt. Samples obtained at catheterization showed that the blood in the right auricle was 69.6% saturated with oxygen; in the right ventricle, 70.2%; and in the pulmonary artery, 75.4%. The difference between the first two values is within the limits of the method. The oxygen saturation of the blood in the pulmonary artery, however, is significantly higher than that in the right ventricle. This indicates that oxygenated blood is being mixed with the relatively unoxygenated blood in the pulmonary artery, and thus that a left-to-right shunt exists—supporting the diagnosis of patent ductus arteriosus.

Another example is illustrated in Figure 1 which shows (A) pressures in the pulmonary artery to be about 20/10 mm. Hg. while in the right ventricle they measure approximately 40/0. This discrepancy in systolic pressures in the right ventricle and pulmonary artery can be explained only by pulmonic stenosis.

The contraindications for cardiac catheterization are few and arbitrary and no general statements can be made in this regard.

### Angiocardiography

Angiocardiography is another recently refined diagnostic procedure that is being used extensively in the field of congenital heart disease. However, like cardiac catheterization, it requires very expensive equipment and trained workers so that its use is necessarily restricted to diagnostic centers.

Basically, the procedure consists of roentgenologic visualization of the heart and/or blood vessels in question as a radio-opaque medium circulates through them. If it is the heart chambers that one wishes to demonstrate, the medium is injected into an arm vein. This is done as rapidly as possible through either a very large-bore needle or a cannula inserted into the vein. If it is coarctation of the aorta that is to be demonstrated, the injection is often done retrograde through the carotid artery so that a higher concentration of the medium is ob-



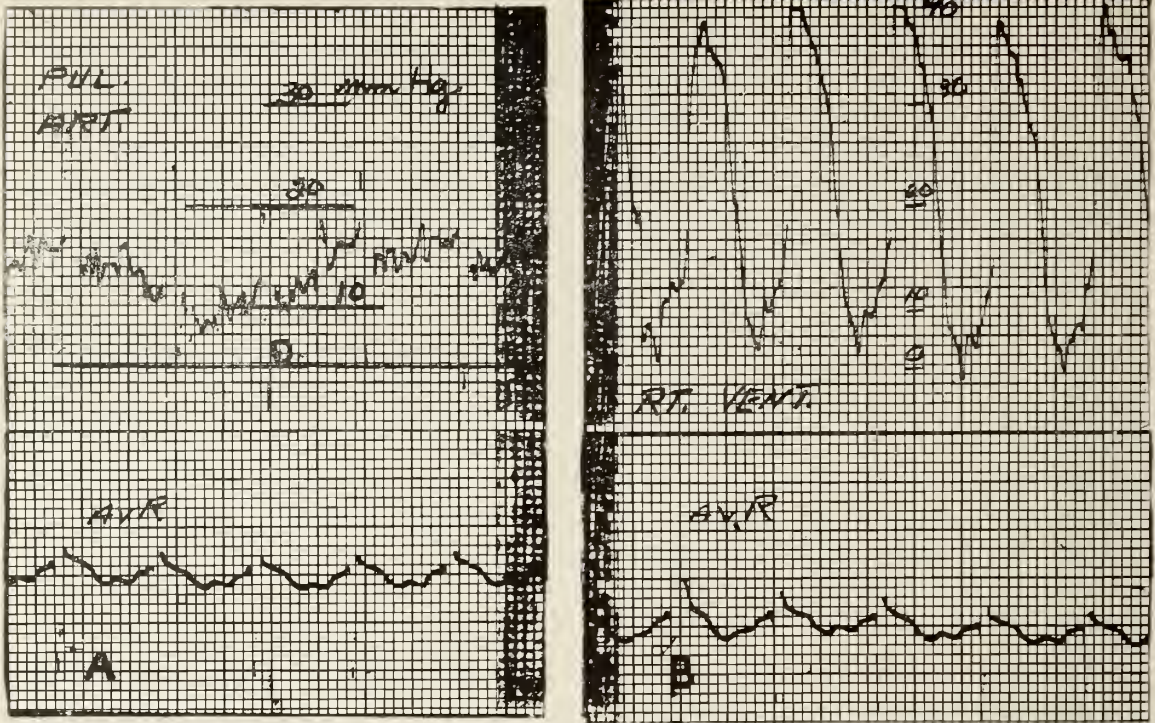


FIG. 1. A. Pressure in pulmonary artery (top) with control EKG below. B. Pressure in right ventricle (top) with control EKG below.

tained at the site of the suspected lesion. (Variations of these techniques are valuable also in demonstrating vascular malformations elsewhere, intracranial aneurysms, for instance.)

Two methods are available for this type of study. The one most widely used consists of a mechanical cassette changer so integrated with the X-ray machine that a series of pictures is made automatically with about one second between exposures. These can then be studied in chronologic order and the course of the dye usually followed very accurately as it passes into various chambers of the heart or through abnormal communications. The other method, still not generally available, consists of making a movie of the image on the fluoroscopic screen while the dye is circulating. The strip of film is then shown with an ordinary movie projector. It is usually made into a loop so that it keeps repeating itself and the observer can watch it until he is satisfied as to the situation.

The choice between angiocardiology and catheterization in any specific instance of congenital heart disease is governed by the suspected lesion and the experience of those involved. Often both procedures are done. In the case of coarctation of the aor-

ta, however, angiocardiology is the only one of the two that is applicable. Here its value is not so much diagnosis as a means of showing the surgeon before he opens the chest the exact location and extent of the lesion. (Fig. 2.)



FIG. 2. Angiogram in coarctation of the aorta made by retrograde injection of the dye via the left carotid artery. The coarcted area appears as an abrupt end of the opaque area in the descending aorta. Note the collateral circulation.



The only serious danger involved is sensitivity to the drug, and cases of sudden death following its use, though rare, have been reported. The patient must be questioned beforehand with regard to any known sensitivity, and must also be tested for sensitivity to the agent to be used.

### Ballistocardiography

Ballistocardiography consists of recording in a standardized manner the motions imparted to the body by the movement of the heart and impact of the pulse wave as it passes through the vascular tree. This can be done by recording the movements of a specially suspended table on which the patient lies, or the movements of a light source in contact with the patient as compared to a photoelectric cell fixed on the table beside it. (Fig. 3.)

Ballistocardiography differs from the other procedures just described in two respects. First, with relatively inexpensive instruments now available, any physician who owns an electrocardiograph can make BCG's at little cost and with no danger to the patient. Second, ballistocardiography so far is based on pure empiricism and, while often of confirmatory value, is very rarely of any use as a primary diagnostic instrument.

### Stethography

This is often called phonocardiography and is another test that almost any physician can perform in his office. Other than making an objective and permanent record of murmurs and timing them accurately, it offers little. It rarely permits one to see something that has not already been heard.

Time will not permit discussion of *electro-*

*kymography, vectorcardiography and oximetry*, but these are all procedures which are, or promise to be very useful in research and/or in clinical medicine.

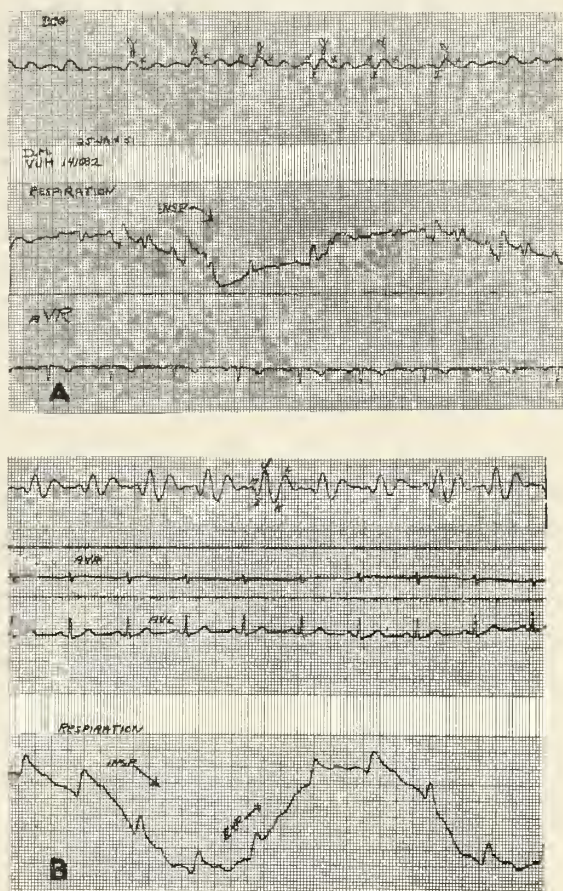


FIG. 3A. Ballistocardiogram in coarctation of the aorta. B. Normal ballistocardiogram. In each case the top tracing is the BCG. Simultaneously recorded pneumograms and electrocardiograms are labeled individually. In the normal tracing waves thought to represent apex thrust, recoil, upward thrust of blood against arch of aorta, and downward thrust against peripheral resistance are easily identified. In the patient with coarctation of the aorta there is marked shortening of the "JK stroke."

**Tubal Sterilization: A Review of 1,169 Cases, Lee, J. G., Jr., Randall, J. H., and Keettel, W. C., Am. J. Obst. & Gynecol., 62:568, 1951.**

During recent years 12 patients who had been sterilized at the University of Iowa Hospitals by the Madlener technique are known to have become pregnant. These failures stimulated this study in which the records of all patients sterilized were reviewed in regard to indications, the various techniques employed, the morbidity, and the end results of operation. One thousand one hundred sixty-nine tubal sterilizations are reported with 12 known failures (1.0 per cent). The Madlener technique was employed in 1,115 cases and all the known failures were in this group. Vaginal steri-

lization has the same incidence of failure as abdominal, but is technically more difficult and carries a slightly higher morbidity. Tubal ligation at the time of cesarean section resulted in 2 per cent of failures. The morbidity of post-partum sterilization is not significantly affected by the day on which it is carried out during the puererium. The chief advantage of early post-partum sterilization is the shortening of the patient's hospitalization. Due to a higher number of failures than was felt justified, the Madlener technique has been discontinued except for sterilizations done during vaginal plastic procedures. The Pomeroy method is currently the procedure of choice in other patients. (Abstracted by Hamilton V. Gayden, M.D., Nashville, Tenn.)



*The causes and effects of orbital cellulitis are outlined. Of importance to the attending physician is the knowledge that serious and permanent ocular changes may attend or follow such disease, pointing up the need for prompt and adequate treatment in these cases.*

## OCULAR CHANGES IN ORBITAL CELLULITIS\*

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Among inflammatory conditions of the orbit may be considered those which originate in the orbit itself and those which involve it secondarily. The former include orbital cellulitis, periostitis, tenonitis and inflammation of the bony wall of the orbit. Among the latter are a list of inflammations, secondary to involvement of the frontal, ethmoidal, maxillary and sphenoid sinuses. While all forms of inflammation in the orbit, as used here, are caused by pathogenic bacteria, it is convenient to divide them into collateral orbital edema and cellulitis. While similar changes occur in both conditions and from similar causes, in collateral edema the inflammatory process subsides without surgical drainage, while in cellulitis frank pus is usually formed, requiring drainage for relief of symptoms. As a rule in collateral edema no microorganisms are found, the symptoms resulting from the infection in the neighboring infected tissues.

The most common cause of orbital inflammation is extension of infection from the paranasal sinuses, accounting for more than 50 per cent of the cases. The ethmoid cells most commonly cause orbital inflammation in the adult while in children the maxillary antrum is frequently responsible. Other causes of orbital inflammation seen commonly in adults and occasionally in children are trauma, osteomyelitis, furunculosis, erysipelas, sinus thrombosis and pyemia.

There is a more profuse development of the lymphatic and vascular system in children than in adults; hence the relative frequency of orbital cellulitis in children. Dehiscences in the bony walls of the orbit are responsible for the spread of infection in some instances.

Collateral edema is mentioned along with cellulitis simply to distinguish between degrees of orbital inflammation, even though the etiology be the same. The early signs of both degrees of inflammation are often identical and it may be impossible to distinguish between them until after an observation of one to three days. The signs vary according to whether the anterior orbit alone or the tissues posterior to the orbital septum are affected. In acute collateral edema, swelling and redness of the eyelids are the principal signs, the position of the globe and its motility remaining unchanged. This is frequently seen to accompany deep hordeola, furuncles of the brow and dacryocystitis; there are no sequelae and vision is not affected. When the posterior orbit is affected the globe is pushed forward and its motility becomes limited. Proptosis varies from 1 to 10 mm. or more. In severe cases it may be so extreme that the eyelids cannot be closed over the cornea. Motility is usually limited in all directions; if limited in one direction only it suggests subperiosteal abscess. Pain is usually severe and develops from the start.

Among the complications resulting from orbital cellulitis are thrombosis of the cavernous sinus, brain abscess, meningitis and septicemia. Here we are concerned with the ocular changes and the reasons for these changes. Serious loss of permanent vision occurs in 14 per cent of the cases according to Gilford; in a large series of cases compiled by Birch-Hirschfeld the total loss of vision was 10 per cent in the affected eyes. The most frequent cause of blindness is optic neuritis followed by atrophy. Ophthalmoscopic examination in the early stages frequently discloses dilated retinal vessels and papilledema. This may be due to thrombosis of the cavernous sinus or interference with the venous circulation from

\*Read before the Tennessee Academy of Ophthalmology and Otolaryngology, April 9, 1951, Nashville.

the eye due to increased pressure within the orbit. Unilateral proptoses and papilledema, in the presence of orbital inflammation does not necessarily imply that the cavernous sinus is involved; it may be considered that the sinus is involved when papilledema and proptosis are bilateral.

It has been suggested by some writers that loss of vision is due to excessive stretching of the orbital portion of the optic nerve from extrinsic pressure by surrounding processes. This seems very unlikely. The optic nerve will tolerate tremendous stretching without apparent damage.

In writing on this subject in 1946 I mentioned that a very likely reason for visual loss was mechanical compression of the central retinal artery by the mass of inflamed and swollen orbital tissues. I pointed out that ischemia of the retina could thereby be produced, reducing the blood supply to the optic nerve and subsequent optic atrophy. In a personal communication\* a question was raised as to why the thin walled, more delicate central retinal vein would not be occluded first. Such a condition would give a picture of venous thrombosis with extensive retinal hemorrhages, rather than the anemic picture of arterial obstruction that we have all seen. Anatomically it is difficult to explain why the arterial circulation should be obstructed instead of venous except that the diameter of the artery is about  $12\frac{1}{2}$  per cent less than that of the vein. It may be that the smaller the diameter the earlier the lumen would be obliterated by outside pressure.

Increased intraocular pressure occurring simultaneously with orbital cellulitis is a factor that has not been dealt with. It possibly could be a definite cause of blindness. We have seen cases of increased intracranial pressure from tumor or other causes, with coincident increased intraocular tension, in which papilledema did not develop or was delayed. In cases where the intraocular tension is high, the same mechanism which prevents or retards the swelling and redness of the optic nerve can also produce ischemia in orbital cellulitis with associated rise

in intraocular pressure. In three cases with fulminating orbital cellulitis I have found an increase in intraocular pressure of from 60 to 90 mm. (Schiotz). Keeney in his personal communication reported a case in which the intraocular pressure was 90 mm. (Schiotz). In my cases as well as in Keeney's blindness was total and rather rapid. The discs showed optic atrophy without cupping. It must be remembered that very high tension maintained for longer than twenty-four to thirty-six hours will often cause irreparable loss of vision. Cupping does not necessarily exist in such an acute condition.

In many cases it is difficult to obtain intraocular pressure readings, or even to estimate it with the fingers, because of the severe edema of the lids and orbital tissues. However, as the proptosis which develops in most cases becomes established, the globe is exposed, permitting the use of the tenometer. In making a survey of cases of orbital cellulitis seen in one hospital over a ten-year period there was no mention of intraocular tension in any. More than 10 per cent of the cases resulted in optic atrophy with total early loss of vision in the affected eye. How many of these cases had visual loss due to increased intraocular tension it is impossible to say. In my cases where visual loss was rapid there was invariably a great increase in intraocular pressure.

Field defects may follow an episode of orbital cellulitis. It is generally and correctly recognized that defects in visual fields are dependable localizing signs. However, in cases of orbital cellulitis associated with papilledema such defects might be misleading. As stated above, papilledema frequently exists due to interference with the venous circulation of the eye from increased pressure within the orbit or to cavernous sinus thrombosis with resulting increased intracranial pressure. In either case the sequence of events is virtually the same. In the very early phase, when the papilledema is slight, there may be no demonstrable disturbance in vision. When the edema is great enough to push the retina away from the disc or to interfere with its function in the region around the disc the physiologic blind spot becomes enlarged. If the papil-

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\*Dr. Arthur H. Keeney of Wills Eye Hospital, Philadelphia.



ledema persists, associated edema of the peripheral fibres in the distal portion of the optic nerve causes contraction of the field, frequently greatest in the lower nasal quadrant. In cases where papilledema goes on for a relatively long time the peripheral fibres of the optic nerve are destroyed with resultant contraction of the field to a small central isle. These observations frequently are not made because the patient is acutely ill and not a good subject for laborious field studies.

One serious and important complication of orbital cellulitis is damage to the cornea as a result of the extreme proptosis. Keratitis due to exposure develops rapidly, and in some cases the cornea may be completely destroyed and the globe lost through secondary infection. The cornea should be protected if possible and this can usually be accomplished by canthotomy and suturing the lid margins together.

Paralysis of the extraocular muscles may develop and in some cases be permanent but usually clears up when the cellulitis has subsided. Some cases have been reported in which scarring in the anterior portion of the orbit was so severe as to prevent opening or closing of the eyelids. This complication can be corrected surgically.

A condition has been described as non-specific chronic orbital cellulitis. Here there is present a very chronic form of inflammation which does not produce pain or congestion. The swelling in the posterior portion of the orbit proceeds so slowly that its only

visible result is a slowly increasing proptosis with limitations in movements of the globe. The pressure of an intraorbital tumor may be suspected and generally must be ruled out by exploration of the orbit. Such exploration discloses an ill-defined mass of tissue which shows only the changes of chronic inflammation.

The treatment of orbital cellulitis is much more satisfactory now than in years past and the cases developing serious complications are much fewer in number. Intensive treatment with antibiotics and sulfonamides, adequate surgical drainage and attention to the original focus of infection constitute the treatment. Bacteriologic studies are of some value in determining the drugs of choice but in most cases we are dealing with a rapid fulminating type of infection and heroic doses of everything available may be used. In spite of all these measures I attended a case recently that developed in rapid succession cavernous sinus thrombosis, meningitis, epidural abscess, osteomyelitis of the frontal bone and massive subdural abscess. With the skillful help of a neurosurgeon he survived.

In *conclusion*, it may be said that the most frequent and serious ocular complication of orbital cellulitis is loss of vision the degree dependent upon the state of the disease when the patient presents himself for treatment. Visual loss from disturbance of the optic nerve fibers, whether from optic neuritis, retinal ischemia or increased intraocular tension, is by far the most common.

## CASE REPORT

### INVERSION OF THE UTERUS

CHARLES S. HERON, M.D., Cleveland, Tenn.

Inversion of uterus is one of the rarest of obstetrical complications. In the Erlanger Hospital of Chattanooga, there is not a single record of such a case in over 30,000 deliveries. However, in textbooks it is estimated that one such complication occurs in 30,000 deliveries. It may be that when most deliveries were done in the homes such cases did not reach the hospital and thus were not reported.

Mrs. B. F. McF., a white female, age 29 years, had a previous uneventful pregnancy, a normal female child being delivered by me, with episiotomy and low forceps.

She presented herself at my office with symptoms of pregnancy, complaining of nausea and vomiting. Her menses had been regular since the birth of her child; she had missed her last period, due 10 days before she consulted me.

The examination revealed an apparently normal pregnancy with normal laboratory findings and normal physical findings.

*Course.* Histadyl controlled nausea and vomiting. The patient was seen at regular intervals during the course of her pregnancy which was uneventful.

The patient presented herself at the hospital 4 days after the anticipated date. She arrived at 5:30 A.M., having irregular contractions. An enema was given and she was prepared for delivery on admission to the hospital. By 7:30 A.M. the pains were harder and more regular. Since by 8:00 A.M. full dilatation with bulging were present, she was put on the delivery table and episiotomy was performed through the previous scar. Low forceps were applied under chloroform analgesia and a normal ten-pound male was delivered. The episiotomy was repaired.

The placenta was expressed by the Crede method and almost instantaneously there was complete inversion of the uterus. It was impossible to replace the organ due to a contracture ring, as well as a pull on the adnexa. There was very little bleeding, much less than is seen in a normal delivery, but the patient went into shock.

Administration of a liter of 5% glucose and 500 cc. of plasma was begun within 20 minutes to combat shock. Heat was applied to the body for warmth. Coramine "IV" and oxygen were given.

It was approximately 20 minutes after glucose and plasma had been begun before any appreciable bleeding took place. At this time umbilical tape was tied around the uterus to control bleeding, and an Ace bandage was used to bind the everted uterus. In less than an hour administration of 500 cc. of whole blood was started and by this time

another Ace bandage was applied to control the oozing that was taking place. (Fortunately, Dr. A. M. Patterson of Chattanooga was in town and consulted with us in treating the shock.) The patient was given another 1,000 cc. of glucose immediately after the 500 cc. of blood was given. A second transfusion was begun.

After the patient was out of shock a decision had to be made whether to attempt to put the uterus back or to remove it. Since a tourniquet had been placed tightly around the uterus at the vulva and the uterus had been tightly bound with pressure bandages for several hours, it was feared that circulatory changes in the uterine muscle and endometrium might cause infarction or slough and further hemorrhage, without even considering the question of infection. It was, therefore, decided to remove the damaged portion of the uterus.

The anesthetic used was nitrous oxide and ether. The operative procedure was as follows. After thorough cleansing of the field with soap and water in copious amounts and draping, the uterus was bisected in the sagittal plane. As the bisection progressed, large Kelley clamps were placed on the cut edges to prevent bleeding. The structures were next identified within the abdominal cavity which now came into view. The broad ligaments came down laterally and the vesico-uterine fold of peritoneum anteriorly. The broad ligaments were dealt with by clamping the round ligament and the tube near the inverted uterine horn. The broad ligament was then divided between the clamps to above the site of the tourniquet, the vesico-uterine fold being pushed upward into the abdominal cavity. The bladder was above this and did not have to be mobilized. A purse string suture was used to close the abdominal cavity. This was placed along the vesico-uterine fold, the broad ligaments and the serous coat of the posterior uterine wall. The uterus was then removed distal to this through the lower segment which was fairly thin. The cervix was grasped next and the small portion of the lower segment, which had been closed with two rows of chromic cat gut, was pushed through the cervix. A pack was placed against this.

The patient was transferred to her room in fair condition and reacted normally. She was given transfusions daily for four days, which brought the blood picture to a Hgb. of 69%, 3,920,000 RBC and WBC of 10,400. Though my records, prior to labor showed the blood to be within normal limits, at the time of cross matching, after the giving of plasma and glucose, the Hgb. had been 48%, RBC 2,450,000 and a WBC of 21,200.

The patient was able to void 100 cc. four hours post-operatively, but had to be catheterized daily for several days until she was permitted to be up.

The vaginal cervical packing was removed on the fourth day, the patient was allowed to sit up on the seventh day and was dismissed from the hospital on the eleventh.

During the stay in the hospital, with the exception of transfusions and mild cystitis, the recovery should be classified as uneventful.



The patient gradually increased her walking and exercise, and was able to come to my office 15 days after leaving the hospital. At which time, with extreme care, a speculum was placed into the vagina and some sloughing of tissue noted. The patient was instructed to take douches daily, which apparently corrected the condition.

### Discussion

The causes of uterine inversion like those of intussusception of the bowel are obscure. It probably has its inception in a contraction of the uterus after the baby is expelled. A depression or dimpling begins in the fundus, and as the contraction proceeds the fundus is first pushed into the lower segment then through the cervix. It also could possibly be brought about by too vigorous massage of the uterus and a pulling on the cord before complete separation of the placenta takes place.

In either case the inversion may be partial or complete, depending on the degree of inversion. In case the placenta is still attached to the endometrium bleeding will be slight. If, however, the placenta has been detached, the placental site is free to bleed. The profound shock that usually follows this

complication is due in the main to blood loss, but the drag on the peritonium and sympathetic nerves in this position is a strong contributing factor, which was most likely the cause in the case reported here.

Even though the exact cause of the inversion is a debatable question, the ideal treatment would be to replace the uterus manually. This is difficult because of possible contractures. Neither can one be absolutely sure of the uterus remaining in position nor of developing profuse hemorrhage later. The successful management of inversion of the uterus has been reported. However, in some instances surgical removal of the uterus has seemed the better course to follow. This choice was made in the case reported here, since a tourniquet and pressure bandages had been applied for several hours while shock was combated. Later sloughing of tissue and hemorrhage were feared.

### Summary

An instance of a rare complication in obstetrical practice has been reported. Surgical removal of the inverted uterus was carried out.

### Diabetes and Pregnancy, Moss, J. M., and Mulholland, H. B., *Ann. Int. Med.*, 34:678, 1951.

The maternal mortality rate in diabetic mothers is now negligible, as compared to the pre-insulin death rate of 25-30 per cent. The fetal mortality rate remains high in spite of good diabetes control and hormonal balance. With these facts in mind, Moss and Mulholland reviewed the pregnancy records of 500 diabetic women seen in the University of Virginia Hospital during the past twenty years.

There were 450 pregnancies in the group of 72 women whose data permitted analysis. The fertility rate was normal. Spontaneous abortion was somewhat more commonly seen in the diabetic than the non-diabetic woman and is probably related to the occurrence of acidosis. Stillbirths were much more frequent in the diabetic and pre-diabetic group, and are not due solely to poor control of the diabetes. The neonatal career of the children was hazardous. The babies are large and 7.1% died, chiefly of atelectasis. The over-all fetal mortality rate was 54.7% in the diabetics, compared to 27.4% in the pre-diabetics and 38.9% in the group examined five years immediately preceding the diagnosis of diabetes. More than one out of four (26.2%) of the babies weighed in excess of ten pounds, compared to an expected incidence of 1.5 per cent. This excessive weight of the babies often antedates by years the appearance of diabetes in the mother. Premature deliveries were more com-

mon, 14.3% compared to an expected incidence of 2.7 per cent. Polyhydramnios was seen in 9.5% of diabetics, and they are ones who are usually under poor control. The expected incidence was 0.4 per cent. Breech presentation was seen more frequently in the diabetic. Toxemia complicated the pregnancies of 42.8% of the diabetics and 14.2% of the pre-diabetics, compared to an incidence of 7% in non-diabetics.

Six of the diabetics were treated with large doses of estrogens and progesterone. There were no fetal deaths in these six pregnancies. Two of the patients had mild toxemia. None of the babies were excessively large and none required cesarean section. These same six patients in previous pregnancies, when hormones were not used in treatment, had a fetal mortality of 27 per cent.

The authors recommend restricting the increase in weight of the mothers to a maximum of twenty pounds during the entire pregnancy, altering the diet to insure this. High protein fractions (2 grams per kilogram) and a low sodium intake are advised. Careful supervision is indicated due to the rapid changes in insulin requirements. Routine cesarean section is condemned. Stilbesterol is given throughout gestation in increasing amounts in keeping with schedules recommended by Smith, Smith and Hurwitz. (Abstracted by the Tennessee Diabetics Association, by Albert Weinstein, M.D., Nashville.)

## CLINICOPATHOLOGIC CONFERENCE

### Baptist Memorial Hospital\*

Mr. H. B., a white male, age 65, was admitted to the Baptist Memorial Hospital on July 22, 1951. He was first seen by a urologist in September, 1950, at which time he complained of an enlargement of the scrotum. His family physician had aspirated it and had obtained fluid which at first was clear but later became bloody. At that time the diagnosis of bilateral hydrocele was made, and he was advised to return for further observation. When he returned on September 18, 1950, the swelling of the scrotum was noted to be larger and somewhat firmer, and there was acute tenderness on the right. A pyelogram was found to be negative on October 3, 1950. The mass in the scrotum was somewhat larger, could be transilluminated, and obviously contained fluid. Surgery was advised at that time. He was next seen on July 2, 1951, when the scrotum was as large as a child's head and interfered considerably with walking. The tumor mass transilluminated well and the right hydrocele seemed "loose." On examination it was noted that there was a firm, nodular enlargement of the testicle on the right. He was admitted to the hospital on July 22. The following history was obtained.

The chief complaint was swelling of the scrotum of about one year's duration. The patient first noted a painless swelling of the scrotum about a year previously. The swelling progressed slowly and was diagnosed as bilateral hydrocele. Several punctures with drainage of the hydrocele had been carried out, and each time was followed by a rapid reaccumulation of fluid. There had been no injury to the scrotum. He denied venereal disease. His past history was non-contributory, except for the fact that he had mumps orchitis "a few years ago." Systemic review elicited no symptoms referable to the cardiorespiratory system or the gastrointestinal tract. He had lost some weight but had had no fever. The family history was without interest. On physical examination the temperature was 99.4°, pulse 92, respiration 18, and blood pressure 150/88. The patient was a small, thin, white male in no acute distress, although he appeared chronically ill. The head and neck were negative. The teeth showed poor oral hygiene. The chest was negative. The heart was enlarged to the left and downward. A grade III systolic murmur was heard over the precordium. The abdomen was flat and there was no tenderness. There was a questionable mass low in the epigastrium which was thought by the examiner to be resistance of the rectus muscle. The scrotum was greatly enlarged, the left side being larger than the right. The mass transilluminated well. The testes could be palpated and seemed hard and nodular as

were also the epididymes. The rectal examination was negative. The clinical diagnosis was hydrocele, bilateral, with chronic epididymitis, either tuberculous or malignant.

The laboratory studies were as follows: The urine was cloudy and acid, with a specific gravity of 1.005; the albumin and sugar were negative. There were 4 to 5 white blood cells per high power field; there were no red cells. The Kahn was negative. The red blood count was 3,860,000 with 10.8 Gm. of hemoglobin. The white blood count was 5,100 with 56% segmented neutrophils, 6% band forms, 30% lymphocytes, 4% monocytes, and 4% eosinophils. There was some anisocytosis and hypochromia.

The patient was operated on July 31, 1951.

### Discussion

DR. JOHN L. SHAW: The history of this case is not too clear in many points. For example, with reference to the scrotum it is stated that hydrocele fluid had been aspirated, but it is not clearly indicated from which side it had been aspirated, nor the volume of fluid that had been removed. There are numerous other obscure points that, due to lack of time, will not be discussed but may be brought out later in the discussion.

It seems obvious that a hydrocele was present since the protocol brings out this distinctly. There is perhaps a hydrocele of both sides. Is that correct?

DR. S. FRED STRAIN: That is correct, bilateral hydrocele.

DR. SHAW: A hydrocele is often symptomatic, being a symptom of disease of the scrotal contents. A hydrocele may occur when no apparent cause can be demonstrated and then is classified as of idiopathic type. The third type, the congenital hydrocele, can be excluded from this discussion since the hydrocele had occurred recently in this 65-year-old man. This leads to the consideration of the idiopathic and the symptomatic hydrocele. The idiopathic hydrocele can be eliminated as the protocol indicates that following aspiration the right testicle was nodular on palpation. This would indicate disease of the testicle. For the moment it might be considered that this is a symptomatic hydrocele. The causes of a symptomatic hydrocele are diseases of the scrotum and its contents, usually of the testes or of the epididymes.

These diseases may be traumatic, inflammatory or malignant in origin. The history

\*From the Department of Pathology, Baptist Memorial Hospital, Memphis, Tenn.



states that there had been no injury to the scrotum, and thus a traumatic origin can be excluded. This leaves inflammatory or malignant diseases for consideration. The duration of disease for more than a year indicates that a chronic condition is present, and this leads to the discussion of the chronic diseases of the testes and epididymes. The most common chronic inflammatory diseases of the testes are syphilis, tuberculosis, or some rare tropical disease such as filariasis. Syphilis of the testes can be eliminated since the Kahn test was reported as negative, and the physical examination indicated the presence of a nodular enlargement of the testicle. A gumma of the testicle usually gives a smooth, spherical type of enlargement. It is felt that syphilis of the testicle can be eliminated. Primary tuberculosis of a testicle is a rare entity, and when it exists, it is usually an extension by continuity from tuberculosis of the epididymis. Primary tuberculosis of the testicle has been reported, and it is a possibility in this case. However, it is a rare condition. In considering the chronic inflammatory diseases of the epididymes, tuberculosis would be the most common cause. Syphilitic epididymitis is very rare and would be secondarily involved in syphilis of the testicle. Malignancy of a testicle may be considered here as some points in the history might bear out its presence. The protocol states that the testes could be palpated, and that they felt hard and nodular. I suppose this refers to both testicles since the word testes is used, although in the first part of the protocol the reference is made only to the nodularity of the right testicle. Were both testicles involved?

DR. STRAIN: Apparently so.

DR. SHAW: Bilateral malignancy of the testes is indeed rare. Hydrocele as an accompaniment of malignancy of the testicle is also rare. In the malignancies of the testicle I have seen there usually has been very little hydrocele. However, others have reported its occurrence. The protocol states there was a questionable mass lying low in the epigastrium, and that it was thought by the examiner to be due to resistance of the recti muscles. It would be of great help to know whether this mass was actually pres-

ent or not. The information is rather indefinite, and one is tempted to disregard it. If it is a definite finding, it would point definitely to a malignancy of the testicle since such malignancies metastasize up the lumbar chain of lymphatic nodes, and a large abdominal mass is frequently one of the first physical findings. The record does not state clearly whether this mass was in the epigastrium, the right or left side. Could you enlighten us on this?

DR. STRAIN: The record here is taken from the patient's chart.

DR. SHAW: If the mass was on the right side, it would offer more definite evidence that a tumor of the right testicle was present. In consideration of the diseases of the epididymes, it has been mentioned previously that acute inflammatory disease of the epididymis can be excluded because of the patient's long history of illness. The most common chronic inflammatory disease of the epididymis is tuberculosis. This disease can be and is frequently bilateral. There are certain things in this protocol that might indicate the presence of tuberculosis. One is the fact that the patient has a low grade fever, though this can occur in malignancy. He was chronically ill, and this might indicate a tuberculous infection. Tuberculous epididymitis is generally a part of genital tuberculosis which may involve the prostate and the seminal vesicles. The protocol states that the prostate was found to be normal, and this would be against the possibility of tuberculous epididymitis. The same is true of the negative chest findings. The blood findings of a white count of 5,100 with a slight preponderance of lymphocytes is compatible with tuberculosis. As for malignancy of the epididymis, I think this can be excluded on the basis of its extreme rarity.

If it were certain that he had an abdominal mass, the diagnosis of tumor of the testicle with symptomatic hydrocele and metastasis to the abdominal lymph nodes would be indicated. It is possible that he could have idiopathic hydrocele on one side of the scrotum, since bilateral malignant disease of the testes is quite rare. The next best possibility would be tuberculosis of the epididymis with bilateral symptomatic

hydrocele. In view of the lack of definite evidence as to the presence of an abdominal mass, I would favor the diagnosis of bilateral tuberculous epididymitis with symptomatic hydrocele.

DR. STRAIN: With regard to the mass in the epigastrium, I may say it was just as indefinite to the examiners as is stated in the abstract. One man thought he felt a mass and another thought it was due to tension or resistance of the recti muscles. Now this case is open for general discussion. We would like anyone to offer any different diagnoses or to comment upon Dr. Shaw's opinion.

DR. R. L. SANDERS: Mr. Chairman and Gentlemen: Not being a urologist at the present time, but having had a little taste of it many years ago, I still have a love for the urologic aspects of many of the complaints in this case. This history reminds me so much of a few cases I have seen, and one of them was just this week. I think it offers a lesson for all of us when there is a lesion of one or the other testicle with an abdominal mass.

Two or three days ago I saw a man who came here with a complaint of a mass just above the testicle, and almost in contact with it on the right side was a lemon-sized mass that could be definitely felt. The only negro in the woodpile was that the mass would come and go and fluctuate in size. The patient would occasionally take an enema, clean out the colon, and feel that the mass was much smaller. That is about the only thing we had to go by. He had had an operation some thirty years ago for a ruptured appendix, and a fistula and hernia followed. Below the hernial scar was this mass, on the same side as the large tumor of the cord in the region of the testicle, so that the examining physician and the ones who saw him before he came in the hospital thought it might be a malignant mass in the right testicle with metastases in the abdomen. It transilluminated perfectly except in one little spot in the upper portion where there was a dark place, which could have meant a tumor with accumulation of fluid. And with the finger in the opening of the hernial sac one could definitely feel a mass. It made one feel that it probably was a

malignancy in a man who was sixty-seven years of age. On the other hand, it felt much like a spermatocele, being just above the testicle, well encapsulated and transilluminated so well. One could also imagine that a wad of omentum could be at the appendix site since he had been operated on. My hunch was that we were dealing with a spermatocele with an omental mass producing the lump that could be felt in the abdomen. We removed it, and Dr. Trumbull has the specimen. He also had a big, right inguinal hernia. I took out his testicle and cord and repaired the hernia, and with the abdomen wide open I could confirm my hunch. The cecum that was fixed to the abdominal wall had adhesions above it, and when it got full of gas, it would fill the cecum, and one could feel it as a mass. When he emptied it, it disappeared to a certain extent, but there was a lot of omentum around it. It proved to be a perfectly benign affair with a separate spermatocele, and the mass was omentum and not a malignancy.

Now, in this case today one of the things which makes me feel we are dealing with a malignancy is the fact that bloody fluid was obtained from the hydrocele sac. I have been suspicious of all bloody fluids I get from the pleural cavities, the tunica vaginalis, or peritoneum, fearing that there is a great probability of the presence of a malignancy. In this case with a mass that one could feel in the abdomen plus a mass in the testicle and the bloody fluid, my guess is that there is a malignancy of the testicle with metastasis into the abdomen.

DR. STRAIN: Is there anyone else who would like to add a word about this interesting case? If not, I am going to ask Dr. Tom Moore if he will tell us what he found in the gross at the operation, and then we will hear what the pathologist found.

DR. THOMAS D. MOORE: Dr. Strain and members of the staff: The patient could have had a somewhat more thorough investigation than the one to which he was subjected. It has been said that two groups get the very best of medical attention. One is the very wealthy, and the other is the charity group, whose investigations cost them nothing. This patient should have



had studies for excretion of steroids, probably bone marrow studies, and estimation of excretion of prolan A in the urine, and other things which were not available to him. He was a man of very limited financial means. He occupied a ward bed, but he did spend several days in the hospital in which other investigations were made, particularly from the standpoint of roentgen evidence. We were concerned about the indefinite mass in the upper abdomen. It seemed to lie somewhat to the left of the midline in the region of the epigastrium, but involvement of the stomach was excluded. It was demonstrated by means of barium enema not to be connected with the colon, and with this evidence surgery was decided upon with precautions taken for the presence of a malignant tumor. I think the statement that it was a hard, nodular mass on the right side with a smaller one on the left is really just the reverse. The larger gonad was on the left, and the one of more moderate size was on the right. Both transilluminated.

At operation the left cord was first exposed and temporarily clamped with rubber protected forceps in order to protect him from the dissemination of malignant tumor cells were we confronted with a malignancy of the testicle. This is a precaution which should be used in all cases in which a malignant tumor of the testicle is under consideration. Upon evacuating the sac we were confronted with a large, nodular tumor of the testicle itself without involvement of the epididymis, whereupon the cord was severed, transfixed, and tied. The opposite side was then explored, and clear fluid evacuated. A tumor of the opposite testicle was also found. So a bilateral orchiectomy was performed.

I might say that bilateral tumors of the testes are rare. Of one series<sup>1</sup> of 222 cases reported, 123 were on the right side, 99 were on the left, and none were bilateral. Several years ago Higgins reported one case of bilateral testicular tumors and found 15 in the literature. He added the sixteenth. You can get an idea from that as to the

rarity of bilateral testicular tumors. In another series of 59 cases of tumors involving the undescended testicle or the tumor present in cryptorchids only 2 were bilateral. Therefore, bilateral testicular tumors are a rarity.

DR. STRAIN: Thank you, Dr. Moore. Now we will ask the pathologist to show us what he found.

DR. MERLIN L. TRUMBULL: This first lantern slide (Fig. 1) illustrates the gross

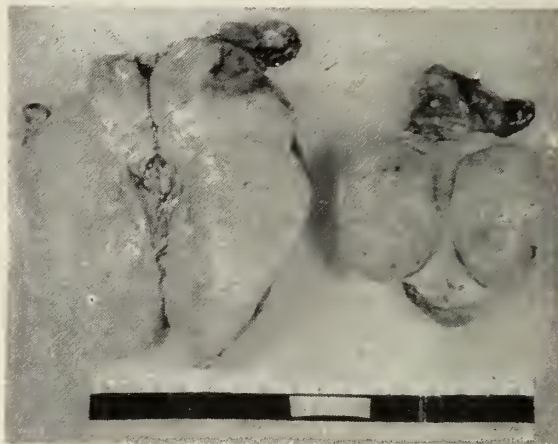


FIG. 1. Bisected cut surface appearance of the testes, the larger being the left testis, the small being the right testis (B.M.H.S-51-5785).

lesion from each of the testes. As you can see, these both presented a fairly uniform and similar cut surface appearance that is rather homogeneous with a pale tan color. That appearance in itself did not characterize any single type of testicular tumor, and we were unable to state just what kind it was, grossly. The second illustration (Fig. 2) is a low power magnification of the microscopic appearance, and this field, I might add, is typical of the several sections

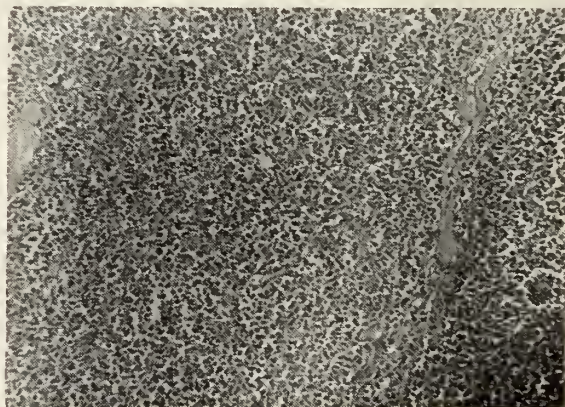


FIG. 2. Representative microscopic appearance of the tumor (x100) (B.M.H.S-51-5785).

<sup>1</sup>Hinman's Principles and Practice of Urology, W. B. Saunders Co., Philadelphia, 1935, p. 763.

taken. Here you see a rather homogeneous, quite uniform, and almost monotonous picture of a single type of cell which is not forming any particular tissue pattern. There is a delicate amount of reticular, collagenous material coursing through it. The third illustration (Fig. 3) is a photo-

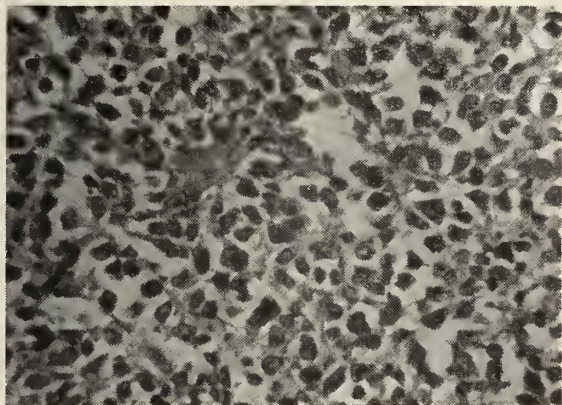


FIG. 3. Representative microscopic appearance of the tumor (x400) (B.M.H.S-51-5785).

micrograph of the same lesion at a much higher magnification. The spaces between the cells really represent tissue shrinkage due to fixation. Here again we see considerable variation of nuclear size, and in the center of the field we can see a rather large nucleolus which measures approximately one-third to one-fourth the diameter of the nucleus. That feature, in itself, when present, is helpful in recognizing neoplastic cells. By and large the tumor cells demonstrate a limited amount of cytoplasm, the most striking feature being the variation in the size of nuclei in which the chromatin is not particularly coarse or great. You might say it is relatively fine. This type of pattern is quite characteristic of that seen in a recticulum cell type of sarcoma. In other words, it belongs to the group of malignant primary lymphomas, and in our opinion it has invaded both testes and given a bilateral

testicular lesion. I think it is difficult for us to say now where the primary site of this lesion was, but in view of the fact that it is a lymphoma and it does not resemble any primary testicular tumor, the questionable mass in the abdomen becomes more important. I understand that chest and other X-ray films on this patient do not show any visible enlargement of his lymph nodes. Nevertheless, I believe that the primary site is probably within his abdominal lymph nodes and that the lesion we see in the testes represents a metastases to both of them. This is rather unusual, and yet I think it is what one would expect judging from the behavior of lymphomas elsewhere. I recall one case of a child who came to autopsy in our department a little over two years ago. At the time of his death both kidneys were tremendously enlarged, causing massive protruberances of the child's abdomen. Microscopically both kidneys were extensively invaded, with the kidney elements widely separated by the lymphomatous infiltration. In general, lymphomas produce an effusion in serous cavities which become involved, and in this instance it was the tunica vaginalis which accumulated fluid. So our final diagnosis is recticulum cell sarcoma involving both testes, probably metastatic. In closing I would like to ask Dr. Moore if these cases of Dr. Higgins were listed as primary testicular tumors, or were any of these metastatic lymphomas involving the testes?

DR. MOORE: They were considered primary.

DR. STRAIN: I think you will all agree with me that this has been a very good clinical pathological conference. I think Dr. Shaw did a wonderful job of summing up the type of pathology one usually gets in such a clinical picture, and then we have enjoyed the discussion by the other men.



## The President's Page by Ernest G. Kelly



DR. KELLY

In my inaugural address at Nashville, I stated that we had not lived up to our responsibility in helping the colored physicians of this state to make the most of their opportunities. I felt then,

as I feel now, that every effort should be made to help the colored physician.

I said that I thought the Negro doctors should be permitted to attend our scientific programs and that we should not bar them from the A.M.A. Out of the 50 or more letters and telegrams that I received as a result of the publicity that those statements received, only two were from colored people and only two expressed opposition to the idea.

There was nothing new in the idea expressed there by me. The House of Delegates of the Tennessee State Medical Association more than 10 years ago (1941) amended Section 4 of Chapter 12 of the By-Laws to read: "Provided that the House of Delegates may issue a charter to one organization of Negro physicians in Tennessee with a view of bringing into the one component society all the Negro physicians in Tennessee who are worthy of membership in the Tennessee State Medical Association. Such a charter, when and if issued, shall only be in force from year to year, subject to the approval of the House of Delegates of the Tennessee State Medical Association."

It was about this time that the president of the Memphis and Shelby County Medical Society, Dr. Joe Francis, extended to the colored physicians of Shelby County an invitation to attend our scientific programs. They came. No one had his feelings hurt; no one was any the worse for their coming. The Negroes came, occupied a space in the rear, and conducted themselves as you would expect any high-class, educated Negro to do.

One day last week quite a commotion was created in one of our local hospitals. A head nurse called to tell the superintendent that a Negro had been admitted to the hos-

pital. Upon investigation, it was found, that although the patient was as black as the ace of spades, he was a Mexican cotton picker, and everything was all right. A few days later, a colored patient whose eyes were blue, hair straight, and skin fair, was admitted to the colored ward of our E.E.N.T. Hospital. When he was carried to surgery, the operating room supervisor became upset and thought the nurse had brought up the wrong patient, because she was looking for a colored patient.

Even to me, born, bred and educated in the South, all this seems rather ridiculous in these enlightened times. We will accept any other nationality, but the mere mention of letting one of our own Negroes come to our meetings or enter our hospitals causes considerable hair raising.

As the *Commercial-Appeal* said editorially here last spring, "Epidemics recognize no color line." If we don't owe it to the Negro, whom we brought here not only without his consent, but against his will, and who was liberated almost 100 years ago by the greatest American of all times, we owe it to our patients and to our fellow citizens to help train the Negro physician that he may be a vanguard of protection against an epidemic that might start among his race and spread across the color line.

Read Sinclair Lewis' book, *Kingsblood Royal*, and realize that the Negro is a human being, laboring under tremendous handicaps, and let's agree to turn as many of his stumbling blocks as we can into steppingstones. The Episcopal Church has just this week voted to admit Negro theological students to its seminary at Sewanee.

I neither advocate nor want to abolish segregation, nor do the better element of the Negroes, for that matter. That's for the future. But I cannot for the life of me see how a few colored doctors sitting in the back or the middle of an auditorium can detract from the paper that is being read or the discussion that is being held.

Someone has said that a man's greatness is best measured by his attitude towards those that have no defense. Let's measure up to that test, live up to our Constitution and By-Laws and lend a helping hand to the colored physicians of this state.

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NOVEMBER, 1951

## EDITORIAL

### PROPHYLAXIS OF RHEUMATIC FEVER

It is commonly accepted that rheumatic fever and acute glomerulonephritis are late complications of hemolytic streptococcal infections. These complications are thought to be manifestations of a sensitivity of tissues of the body to the streptococcus or its products. There is good experimental evidence in animals that this is true; by analogy it may be accepted as occurring in man, strengthened by certain clinical evidence. This evidence is the frequency of proven or presumptive infection (usually of the oropharynx) in days to several weeks before the clinical picture of rheumatic disease or glomerulonephritis develops. Not infrequently in a family there may be coincident suppurative complications due to the hemolytic streptococcus in some members and these nonsuppurative ones in others. Further suggestive evidence is supplied by the fact that patients with these non-suppurative complications of streptococcal infection develop high titers of antistreptolysin and antifibrinolysin in their blood with diminishing amounts as they get well.

If we accept then, that rheumatic fever represents an altered cellular reaction to preceding streptococcal infection, we can understand why the use of first, the sulfonamides, and later penicillin proved to be ineffectual in treatment. These antibacterial substances cannot be expected to alter an allergic manifestation,—theoretically might even intensify such a reaction as suggested by findings following the use of sulfonamides in some instances.

The use of antibacterial agents as a prophylactic measure against rheumatic fever, and other diseases of similar pathogenesis, was much more logical and has had successful trial. Thus in the decade included in the late thirties and early forties, several studies were reported which indicated that the prophylactic use of sulfonamides in persons who had had acute rheumatic fever, and thus a predisposition to subsequent attacks, was successful. The continuous use of sulfonamides throughout the year in some groups, or the seasonal use (October to June) in others led to a reduction of recurrent attacks to one-sixth of the incidence occurring in control, not-treated groups of patients. It is true that certain authors have not accepted such data as statistically sound and have questioned whether the studies were adequately controlled.

Because of toxic reactions to sulfonamides, it is only natural that penicillin as a prophylactic against rheumatic fever should be tried. It has been shown that by the daily administration of penicillin orally the hemolytic streptococcus can be eliminated from the throats of most carriers. Since about one-half the attacks of rheumatic fever are preceded by subclinical streptococcal infection, the oral use of penicillin continuously would be the only answer, if successful, to the prevention of attacks subsequent to the initial one. Massell and coworkers<sup>1</sup> have studied the effective-

<sup>1</sup>Massell, et al.: Orally Administered Penicillin in Patients with Rheumatic Fever, J.A.M.A., 138: 1030, 1948; Prevention of Rheumatic Fever by Prompt Penicillin Therapy of Hemolytic Streptococcal Respiratory Infection: A Progress Report, J.A.M.A., 146:1469, 1951; Present Status of Penicillin Prophylaxis of Rheumatic Fever, Modern Concepts Cardiovascular Dis. 20: No. 9, 1951.



ness of oral penicillin in carriers of the hemolytic streptococcus and in rheumatic fever patients. By the administration of 100,000-200,000 units of penicillin orally three times daily the positive cultures in 183 carriers were reduced to 2 per cent in three days. (By giving the first dose on awakening, the last at bedtime and the third on return home from school, the interference with absorption by food is diminished.) This author reports not a single instance of hemolytic streptococcal infection or recurrent rheumatic fever in a limited number of rheumatic fever patients treated by this regime for five years. He lists the disadvantages as:—allergic reactions to penicillin, the development of penicillin resistant streptococci and a cost of about \$100 per year for this regime.

The second aspect of prophylaxis against rheumatic fever is the prompt treatment of streptococcal infection with penicillin. The same author reports that in 34 rheumatic subjects (not on a continuous regime of oral penicillin) developing hemolytic streptococcal respiratory infections, large doses of penicillin for ten days permitted recurrent rheumatic fever in only 2, whereas in 12 untreated similar patients recurrence occurred in 6 instances. The treatment of such infection even in nonrheumatic subjects should be emphasized. Denny and associates,<sup>2</sup> in air force trainees, observed only 2 instances of rheumatic fever among 798 men with streptococcal infection and treated with penicillin, as against 17 cases among a controlled, untreated group of 804.

There seems good reason to follow Massell's suggestions in the management of streptococcal infections especially in those in the ages of 5 to 25 years,—the years in which most of the potentially allergic persons will develop rheumatic fever for the first time. He suggests 300,000 units of procaine penicillin intramuscularly daily for three days, then orally 300,000 units t.i.d. for two days, 200,000 t.i.d. for a second two days and finally 100,000 t.i.d. for another three days.

<sup>2</sup>Denny et al.: Prevention of Rheumatic Fever. Treatment of the Preceding Streptococcal Infection, J.A.M.A., 143:151, 1950.

Every family physician should be familiar with this important item in preventive medicine.

R. H. K.



#### ASSOCIATION OF AMERICAN MEDICAL COLLEGES AND THE VETERANS ADMINISTRATION

On another page is presented in full a resolution passed by the Association of American Medical Colleges at its annual meeting on October 31. This was the result of one man's endeavor to acquaint the faculties of medical schools having an affiliated Deans Committee V.A. Hospital of the violations of the laws in these hospitals. Dr. Robert McCleery, formerly chief of the surgical service of the Thayer V.A. Hospital, found that nothing was ever done about veterans who committed perjury by swearing to inability to pay for needed medical care, though severe penalties are prescribed in the statutes for this. (Numerous such instances have been called to the attention of the administrative officers by attending physicians.) He thereupon resigned his position and devoted his energies, with the advice of a Citizens Committee, to the instruction of deans of medical schools with respect to the legal violations in institutions for which they in good faith were supplying such excellent medical attention that the beds are kept full constantly.

Several weeks before the meeting Admiral Boone, Chief Medical Director of the V.A., and his solicitors were handed three questions for written answers and an invitation to appear at the meeting of the Association of American Medical Colleges. These questions were:—

(1) Where in Public Law is the prohibition against later investigation of the sworn statement of the veteran that he is unable to pay for the medical care he seeks? (2) Where in Public Law is the authority for admitting as medically indigent a veteran who swears that he is unable to pay and who at the same time submits an insurance policy covering the costs of his hospitalization and physician's fees? (3) Where in Public Law is the authority for the change in pro-

cedure ordered in the Service Letter of August, 1945. (This discontinued the policy of requiring a certain type of veteran to swear to his medical indigency.)

Admiral Boone failed to answer these questions satisfactorily at the meeting of the Executive Committee of the Association. Your editor heard Boone's second failure to answer these questions adequately, at a meeting of the Committee on Veterans Administration—Medical School Relationships. After a fifteen-minute "flag waving" and filibustering account of his past and present activities, Admiral Boone read an answer to the first two questions. He then confirmed that he had not answered the third question in writing and proceeded to answer it verbally. He admitted that there was no basis in law for the change in policy under question. The Committee on V.A.-Medical School Relationships made recommendations that each of the schools investigate the admission practices of the V.A. in the hospitals affiliated with them. These recommendations were adopted.

The policy of Deans Committee hospitals after World War II has led to such a high level of medical care, contrasted to the medical V.A. doldrums of prewar days, that it has led to a clamor for admission to such hospitals. This fact and the current philosophy of the population at large to get something for nothing, encouraged by V.A. tactics, has led to illegal practices to gain admissions. (It is hoped that no Tennessee physician has aided and abetted this system by referring any of his patients with non-service connected disabilities who are not medically indigent to V.A. Hospitals.) No one quarrels, as is well shown in the resolution, with a high level of medical care for the veteran with service connected disease or who is truly medically indigent.

The faculties of the medical schools have finally been made aware of the fact that they have been a cat's-paw in the advance of governmental medicine. It seems almost a certainty that V.A. medicine is a back-door approach to such a future. How else can one explain the expansion of V.A. general hospital beds from 106,287 to 126,650 in 1952,—when even now they cannot be

staffed adequately professionally, and when only a minority of beds are occupied by patients with service connected disabilities! (As appears in last year's report of the Veterans Administration:—577,715 patients were admitted to all hospitals, only 13 per cent being service connected; 206,207 of these were World War I veterans, only 5 per cent of whom had service connected disease.) If those with nonservice connected disease who are *not* medically indigent can receive good medical care for "nothing," it takes little imagination to visualize a demand that the same care be made available to their wives and children. Pressure groups will no doubt begin a cry for this when they can point to empty beds in V.A. hospitals.

Since these events are foreseeable in the not too distant future it is well that the faculties of the medical schools do their duty as citizens in breaking this trend toward statism and bankruptcy, both financial and moral. Some few of the deans, though agreeing in principle to the contents of the recommendations of the Committee and the resolution, felt that the duty of the medical faculties is to take care of the sick and to conduct the teaching program to the best of its abilities, and not to ask of the why or wherefore of the V.A. policies obviously fearing to be drawn into political wrangles. At one such occasion your editor arose to point out that his duty as a teacher was not limited to the discussion of medical subjects only, but also included the ethical and moral attributes of the physician in his professional life and as a citizen.

Since the success or failure of V.A. medicine is dependent *wholly* upon the medical faculties of the medical schools, let us hope that this action of the Association of American Medical Colleges will return the V.A. to a policy of honesty, permitting its personnel to hold up their heads as American citizens should. More importantly, by dropping a policy of deceit the V.A. may force those citizens who are spineless parasites to stand on their own feet.

R. H. K.



## THE TENNESSEE PLAN—WHY EVERY DOCTOR SHOULD BE A PARTICIPATING PHYSICIAN

The Tennessee Plan is the "Doctor's Plan"—the medical profession's own constructive solution to the problem of making prepaid medical services available to people in the low income brackets. It was organized more than two years ago by the Tennessee State Medical Association.

The Plan is advised and guided by the organized medical profession in Tennessee. This guidance and supervision is given by members of the Association's Prepaid Insurance Committee. The Committee includes laymen who represent the consumers of medical services. All serve without remuneration, although their responsibilities are heavy and time-consuming.

Your participation in the Plan is a personal contribution to the preservation of freedom in medicine. The Tennessee Plan is proof that voluntary health insurance can do the job without federal intervention and control.

Your participation is tangible evidence to your patients and to all of the more than 300,000 persons insured under the Plan that you are supporting this nation-wide effort of the profession to meet the public need for prepaid medical services through voluntary methods.

The Tennessee Plan, by virtue of your participation and 1,700 other Tennessee physicians, is the only plan that pays surgical bills in full for those within the income brackets of \$2,400-\$3,600.

If you haven't signed a "participating agreement," won't you write the Executive Secretary and ask for an agreement form and descriptive brochure on the Plan—including fee schedule and regulations?

V. O. F.

## DEATHS

**Dr. Edgar Jones**, Associate Professor of Medicine, Vanderbilt University School of Medicine, died on October 27, 1951, at the age of 47. Dr. Jones had been associated with the Vanderbilt School of Medicine since

1935 and at the time of his death was carrying on original research in hematology, which has received national recognition. In his years on the faculty of the Medical School Dr. Jones was a selfless teacher to a thousand and more medical students and the house officers of all services, always available for personal consultation at the bedside. His hundreds of free telephone consultations and opinions on blood and bone marrow smears in the hematologic field, always willingly given, will be missed by the physicians of middle Tennessee, Alabama and Kentucky.

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**Dr. William Sailer Anderson, Sr.**, practicing physician in Memphis for almost fifty years, died at his home on September 27, 1951. He began his Memphis practice shortly after graduating from Tulane University in 1899. Aged 74.

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**Dr. Charles E. Evans**, city health officer and former alderman in Tullahoma, died at his home on October 17, 1951. Dr. Evans, a native of Moore County, practiced in Winchester before coming to Tullahoma in 1923. His age was 77.

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**Dr. Donald R. Roach**, Morristown, died October 16, 1951 in a Knoxville hospital after an illness of several weeks. Dr. Roach had practiced in Morristown since 1931. He served in the Air Force Medical Corps during World War II. Aged 47.

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**Dr. E. B. Clark**, White County Health Officer, died October 3, 1951. A native of White County, Dr. Clark had practiced in Sparta since 1929. Aged 63.

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**Dr. V. L. Lewis**, Crossville physician, died October 14, 1951. He had practiced in Crossville 40 years. Aged 73.

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**Dr. Wright Mitchell**, retired Memphis physician, died at his home on October 9. Dr. Mitchell, while practicing medicine, was admitted to the bar in 1934. After his retirement 25 years ago he devoted himself to one of his hobbies, the operation of his amateur radio station W4EM. Aged 68.

**Dr. J. G. Love**, Knoxville, died on October 3, 1951, at the age of 71. Dr. Love practiced medicine in his native Morgan County since 1910 and served, for the last several years, as physician for a coal company and a lumber company in Wartburg.

## PROGRAMS AND NEWS OF MEDICAL SOCIETIES

### Knoxville Academy of Medicine

A symposium on "Fetal Mortality in Cesarean Sections" was held on October 9. Those taking part were Drs. A. W. Diddle and H. H. Jenkins of Knoxville, Dr. S. S. Lambeth of Maryville and Dr. R. J. Hawkins of Chicago, Illinois. The October 23 meeting was a dinner meeting sponsored by the East Tennessee Heart Association. Dr. T. R. Harrison of Birmingham was guest speaker, having as his title "Congestive Failure: Causes, Recognition and Treatment."

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### Nashville Academy of Medicine and Davidson County Medical Society

At the October 3 meeting which preceded the Nashville Postgraduate Medical Assembly, Dr. R. F. Bowers, Memphis, presented a paper on the "Management of Chronic Pancreatitis." On October 16 the Academy met at Thayer V.A. Hospital, where an excellent program was presented by members of the staff: (1) "X-ray Procedures in the Differentiation of Upper Abdominal Surgical Conditions" by Drs. John H. Beveridge and Kirk R. Deibert; (2) "The Clinical Study of the Effect of Vagotomy on Recurrent Acute Pancreatitis" by Drs. McCleery, Schaffarzick and Kesterson; (3) "The Advantages of Suction Socket Above the Knee Prosthesis" with demonstration, by Dr. Odon Von Werssowetz; and (4) "Recent Advances in Our Understanding of the Etiology of Hypertension" by Dr. Norman S. Olsen.

Papers presented at the October 30 meeting were as follows: "Cardiac Emergencies in General Practice" by Dr. James P. Anderson, "Addison's Disease Survey" by Dr.

D. J. Johns and "Office Obstetrics" by Dr. Irving R. Hillard.

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### Chattanooga-Hamilton County Medical Society

Three papers were presented by local doctors at the semimonthly meeting of the Chattanooga-Hamilton County Medical Society on October 11 in the Interstate Building. Dr. Robert J. Boehm gave "A Discussion of Pancreatitis"; Dr. Fay B. Murphey, "Present Status of Adrenal Hormone Therapy"; Dr. Robert Robertson, "Personal Observations on Orthopedic Treatment of Korean Battle Casualties."

The Society held a joint meeting with the Society's Auxiliary in Chattanooga on October 18, devoted exclusively to Public Relations. The evening meeting, held in the new meeting place of the Society, was well attended by doctors, their wives and many invited public guests. Ed Bridges, our Public Service Director, assisted in arranging the meeting which was presided over by President J. L. Hamilton.

Speakers were Dr. W. A. Garrott, Public Service Committeeman for the Third District; Dr. D. W. Smith, Nashville, President-Elect; and Dr. L. W. Edwards, Nashville, Chairman of the Public Service Committee of the Association. Executive Secretary Foster informed the group that the three-session course for doctors' secretaries and receptionists scheduled in November and December for Knoxville could be run concurrently in Chattanooga. The Society accepted the offer and Ed Bridges will conduct both Society courses on a circuit-riding basis.

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The annual Chattanooga dentist-physician golf tournament was held Wednesday afternoon, October 10, at the Signal Mountain Golf and Country Club.

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The Chattanooga-Hamilton County Medical Society has approved the addition of fluoride to the city water supply. Next action on the proposal will be up to the Chattanooga city commission and the county council. Previous approval had been given



by the city-county health department, the Chamber of Commerce and the Third District Dental Society.

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### Consolidated Medical Assembly

Dr. L. S. Meriwether, Chief of Medicine, Ochsner Clinic, New Orleans, Louisiana, addressed the Consolidated Medical Assembly at its monthly dinner meeting on Tuesday, October 2 at the New Southern Hotel in Jackson. The subject of the address was "Analysis of Headaches."

## NATIONAL NEWS

### A Resolution Approved by the Association of American Medical Colleges in Session at French Lick, Indiana, October 31, 1951

"The concern of many of the deans and faculties of medical schools having relationship with Veterans Administration Hospitals, over certain aspects of the operation of those hospitals, has been expressed in the discussions of various committees and groups of this meeting.

"Medical care for the veterans is unsurpassed; we must keep it that way. The present high quality of this medical care is the result of the cooperation of the respective Dean's Committees and the faculties of the medical schools. First, the hospitals have been so well staffed that the professional work has been of exceptionally high quality. Second, the resident training program in these hospitals has been so good that increasing numbers of competent young doctors have wished for postgraduate training in these institutions.

"We believe that this combination of expert professional care and high type residency training has made the service of the VA hospitals so desirable and so popular that increasing numbers of veterans have wished to be cared for in them. We believe that all Dean's Committees and their faculties feel strongly that the very best of medical care should be preserved for veterans, in accordance with the laws that have been enacted by Congress. On the other hand, we also believe that the use of VA facilities

for veterans with non-service connected illnesses and disabilities who are, by any reasonable definition, able to pay for adequate medical care should not be permitted. The use of veteran facilities in such manner we believe to be great at the present time, and growing. As a consequence of this it will become overwhelming and will threaten to destroy the high quality of medical care that Dean's Committees and their faculties have made possible for veterans.

"This Association calls this matter to the attention of the various Dean's Committees with the suggestion that they give their earnest consideration to this threat to the continued provision of high quality medical care and the related educational program. This Association recommends to the Dean's Committees and their faculties that they make an investigation of this situation and take appropriate action designed to correct it, thus insuring for needy veterans the best possible medical care. They deserve no less."

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### Half of the Nation Covered by Voluntary Health Insurance

The Health Insurance Council, made up of nine trade associations in the life and casualty fields, came up with its 1950 report in September which should set socialized medicine supporters back on their heels—one of their big arguments being that voluntary plans can't do the job.

The report shows that at least half of the nation's population at the end of 1950 was covered by one type or another of voluntary protection against the economic risks of illness and accident.

All forms of voluntary health protection scored tremendous gains in 1950 to set new records.

Hospital insurance was held by 76,961,000 persons at the close of 1950. This was a 17 per cent increase over the figure of 66,044,000 just a year before. The number of people insured against hospital costs has more than doubled since the end of World War II.

Great strides were made also by surgical and medical expense plans. 54,477,000 are protected against surgical expense—an in-

crease of 32 per cent over the number a year ago. Medical expense coverage was held by 21,589,000—a gain of 28 per cent in this newest field of health insurance.

Tennessee physicians, through the Tennessee Plan, are doing their part in this national effort to solve a pressing problem in medical economics.

## MEDICAL NEWS IN TENNESSEE

### University of Tennessee College of Medicine

The Division of Surgery has established a research chemistry laboratory under the direction of Dr. James Hardy, formerly of the University of Pennsylvania. Problems under investigation deal with anesthesia, thyroid activity, post-operative adhesions and vascular surgery.

The Division of Chemistry has added Roger Koeppe, Ph.D., and B. M. Hightower, M.S., to its staff as research associate and instructor respectively. Dr. F. C. Chang of Canton, China, has joined the Department as a lecturer.

The Fall Quarter opened on September 27 with an enrollment of 50 students, an increase of fifteen. This will increase the total freshman enrollment to 200 per year. Thereby it is hoped the number of nonurban physicians will be increased. From 1923 on, 62-72 per cent of U. T. graduates returned to their home communities to practice. The College of Medicine supplied more doctors to nonurban counties (population 50,000 or less) than all other medical schools combined. In the decade 1940-1949, 58 per cent of the physicians in nonurban counties were graduates of U. T.; 31.5 per cent in nonurban counties were graduates of schools outside of Tennessee.

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### Vanderbilt University School of Medicine

Dr. Henry W. Scott, Jr., associate professor of surgery at Johns Hopkins Medical School, has been appointed professor of surgery to succeed Dr. Barney Brooks who retired from his administrative duties last June. Dr. Rollin Daniel, associate profes-

sor of surgery, was promoted to full professorship.

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### Emergency Medical Care for Military Personnel

Civilian medical care (other than elective) at Army expense is authorized for commissioned officers and enlisted men when on duty or on leave or pass status. Normally, civilian medical care for Army personnel is authorized where federal medical facilities are not available.

First aid or emergency treatment of Army personnel is authorized ANY TIME, irrespective of the proximity of Army or federal facilities for the purpose of saving life or limb, or to prevent great suffering. Surgical operations should not be performed without prior authorization by military authorities unless indicated as an emergency procedure.

Services to dependents of military personnel by civilian agencies are not reimbursable.

As a general rule, local military commanders will furnish the civilian agency with prior written authority for ordinary medical care to Army personnel. Emergency cases without prior authority should be reported immediately to the nearest military command, stating name of patient, unit, nature of illness or injury, and an opinion of the practicability of transferring the patient to an Army or federal facility.

Bills for authorized emergency medical care should be submitted to the commanding officer of the patient's military organization, or to the military authority who authorized the treatment. If neither of these is known, submit bills to the Surgeon, Third Army Headquarters, Fort McPherson, Ga.

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### VA Home Town Care Program Praised

Upon request, Dr. George A. Hatcher, Chief Medical Officer, Regional Office of VA, Nashville, has submitted a statement on this important program in Tennessee. During the last fiscal year, July 1, 1950-June 30, 1951, there were 920 Tennessee physicians serving as "participating physi-



cians." These doctors received a total of \$135,129.46 for their services to VA beneficiaries. During the same period, 570 "participating dentists" in Tennessee received \$466,911.75 for their services. Dr. Hatcher's article follows:

"Prior to 1946, the Veterans Administration operated an out-patient service with what was then known as 'Designated Physicians.' Since that date, the Home Town Care Program has been in existence in this state and has been most successful. This is due to the cooperation by the Tennessee State Medical Association and its members with the Veterans Administration in working out details concerning such a program and reaching an agreement as to the schedule of fees for services rendered to service-connected beneficiaries for whom treatment is authorized by the Veterans Administration. In some cases, requests for additional treatment are not being forwarded to the Veterans Administration by Participating Physicians when such treatment is needed by the beneficiary. Requests for additional treatment should be forwarded prior to the beginning of the month in which treatment is to be rendered. Except in an emergency the physician cannot be paid by the Veterans Administration for treatment rendered without prior authority and, in such instance, the physician must notify the Veterans Administration within fifteen days after treatment was given. The physician's prescriptions may be filled by Participating Pharmacies at Veterans Administration expense provided the physician has been authorized to treat the beneficiary. Even though treatment was given for a service-connected disability, the beneficiary or physician must reimburse the Veterans Administration for a prescription which was filled by a Participating Pharmacy at Veterans Administration expense when treatment was not authorized. Recently the Home Town Care Program was extended to include part-time nursing care in the home on a fee basis as prescribed by Participating Physicians for service-connected beneficiaries, this nursing service to be given by the Visiting Nurse Service, Inc., 1919 Broadway, Nashville. This part-time nursing care is limited to the City of Nashville

and Davidson County within two blocks of the City Bus Line (Southern Coach Lines) where the City of Nashville rate prevails. As this service is extended to other cities or counties, the physicians will be advised through this JOURNAL and by letter from the Veterans Administration."

## PERSONAL NEWS

**Dr. R. P. Beasley** was elected Mayor of Dickson in a city election held on September 27. He carried all four of the wards, defeating two other candidates.

**Dr. Joel J. White**, retired Navy rear admiral, became medical director of St. Mary's Hospital in Knoxville on November 10. He is former director of the Nashville Regional Red Cross Blood Center.

**Dr. Troy A. Walker** received more than 300 guests at the grand opening of his new medical clinic in Erin, Houston County, on Sunday, September 30.

**Dr. A. F. Branton**, administrator of Erlanger Hospital in Chattanooga, has been appointed to the Council for Government Relations of the American Hospital Association.

Among those honored by the presentation of "Community Service" awards in ceremonies at commencement of the University of Tennessee College of Medicine were **Doctors Archie Charles Bailey** and **Vernon Hutton** of Nashville and **Dr. John S. Beasley** of Centerville.

**Dr. Rene B. Ledbetter**, Knoxville, has been named county physician succeeding Dr. Andrew Smith, who died September 5, 1951.

**Dr. Frank S. McKnight** has recently joined the staff of physicians at Morris-Wilder-Outlan Clinic in Somerville.

**Dr. F. E. Marsh**, Chattanooga physician, was interviewed on October 8 in a health council radio broadcast for the Chattanooga Area Heart Association. Dr. Marsh emphasized heart disease as a cause of death and expressed the hope for vastly increased research in this field.

Nashville and Springfield newspapers paid tribute to **Dr. William B. Dye**, Springfield physician, on occasion of his seventy-fifth birthday. Dr. Dye, whose contribution to health and welfare in Robertson County is rated as "of extraordinary quality and magnitude by his fellow citizens," has practiced in that county for 48 years.

**Dr. R. G. Cravens** joined **Dr. Denton Norris** at the Cravens-Norris Clinic in Jamestown on September 30.

The charitable activity of **Dr. Owen H. Wilson** of Nashville was the subject of an article appearing in the *Nashville Tennessean* recently. Dr. Wilson has been officially retired for three years, but he has continued his medical practice in the volunteer and charity fields. He serves the McNeilly Day Home and other Community Chest organizations.

**Dr. Murrel Froedge**, formerly of Glasgow, Kentucky, has become associated with **Dr. Max Painter** in the operation of the Painter Clinic in Lafayette.

"If anybody can get the job done, Dr. Hess can do it," began an article in the *Memphis Press-Scimitar* praising **Dr. E. P. Hess's** services, both civic and medical, to the people of Haywood County. Dr. Hess has spent the greater part of his half century as a physician and surgeon in Holly Grove community near Brownsville.

**Dr. Thomas F. Booth**, a leading member and past master of the Pulaski Masonic Lodge, was elected Knight Commander of the Court of Honor at the biennial Supreme Council meeting held recently in Washington, D. C. This is one of the highest honors in the Masonic Order, and Dr. Booth is the first Giles Countian to receive the title.

**Dr. J. L. Hamilton**, President, Chattanooga-Hamilton County Medical Society, addressed the Auxiliary at the Chattanooga Golf and Country Club on October 4. His subject was "Tuberculosis."

**Dr. Lawrence B. Molloy** has opened his offices at 112 Berger Street, Lawrenceburg. Dr. Molloy is a graduate of Vanderbilt University School of Medicine.

**Dr. Oscar Noel** was hospitalized with polio in the Vanderbilt Hospital during the latter part of October.

**Dr. Nat Copenhaver**, Bristol, has been named president-elect of the Mayo Foundation for Medical Education and Research. Dr. Copenhaver's election marks the fourth time in 34 years that a Southerner has been named president of this Association. **Dr. Robert L. Sanders** of Memphis was president of the Foundation in 1929.

## LOCATION WANTED

"With further reference to locations available for general practice in West Tennessee I shall be happy to give you the information requested.

I was graduated from the College of Medicine, University of Tennessee, in September, 1950 and am now interning at the Jefferson Davis Hospital in Houston. I will finish September, 1951. I am licensed to practice in Tennessee.

I prefer a small town in West Tennessee of approximately three to ten thousand population."

Yours very truly,

LW-4

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## Location Wanted

A young physician desires to enter general practice in Tennessee. He is 37, married, has two children. He graduated with honors from UT Medical School in 1945. Completed 13-month internship at John Gaston Hospital, then entered the Public Health Service and received a postgraduate course and clinical training in diseases of the chest. Served as Director of Tuberculosis Control Division of Alabama Public Health Department from 1940 to 1950. He is presently employed as full-time physician with a State Public Health Department. He has a Tennessee license and would be available on thirty days' notice.

LW-5

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## Physician Wanted

A resident physician in a town within fifteen miles of Memphis advises this office as follows:

"The City of \_\_\_\_\_ is in a very great need of additional doctors. Any help you can give us in solving this situation will be appreciated."

PW-2

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## Surgical Residents Wanted

The Newell Hospital, Inc., Chattanooga 2, Tennessee, has immediate opening for surgical residents. The hospital is an accredited 50-bed general



hospital with a large private clinic practice. The resident salary is \$400 per month with maintenance. The Newell Hospital has recently become approved for one-year residency training by the Council on Hospitals of the American Medical Association. Residents can obtain approval from the American Board of Surgery and the American College of Surgeons on a preceptorship basis. Address inquiry to Dr. Edward T. Newell, Jr., c/o The Newell Hospital. The present residency is open until July 1, 1952, at which time three additional appointments will be available.

PW-3



### General Practitioner Wanted

An established physician located within 50 miles of Nashville desires an associate. He has new and adequate clinical facilities.

PW-5



### EENT Specialist Wanted

This office has received a request that we assist the town of Princeton, Ky., locate an EENT physician. Princeton has 5,500 population, three factories, and a new industry coming in. It is located in a prosperous agricultural region. A new 35-bed hospital has been completed. There is no EENT specialist within 30 miles. Other adjacent towns include Cadiz, Eddyville, Kuttawa, Marion, Providence, and Dawson Springs—all within 25 miles of Princeton.

PW-6



Information on physicians and locations available from the Executive Secretary, Tennessee State Medical Association, 504 Doctors Building, Nashville.

*LW-1 has located in Tennessee as result of this column. A letter of appreciation for our help has been received from this young physician. LW-2, LW-3, PW-1 and PW-4 have also been filled.*

## ANNOUNCEMENTS

### Cooperative Cancer Clinics in Tennessee

Medically indigent patients may be referred to the following clinics for cancer diagnosis. Referral forms No. 576 may be obtained from the State of Tennessee Department of Public Health, Nashville.

#### Memphis

West Tennessee Cancer Clinic  
787 Jefferson Avenue  
Memphis, Tennessee

Time: Monday, Tuesday, Thursday and Friday  
Hours: 8. a.m.-12 Noon

#### Nashville

Nashville General Hospital Tumor Clinic  
Hermitage Avenue  
Nashville, Tennessee  
Time: Tuesday  
Hours: 12:30 p.m.-4 p.m.

Hubbard Hospital Tumor Clinic (Colored)  
1005 Eighteenth Avenue, North  
Nashville, Tennessee  
Time: Monday and Thursday  
Hour: 11 a.m.

Vanderbilt University Cancer Clinic  
Twenty-First Avenue, South  
Nashville, Tennessee

Time: Wednesday	Thursday	Friday
Hour: 1 p.m.	9 a.m.	9 a.m.
Type: E.N.T.	Surgery	Gynecology

Saturday  
9 a.m.  
Neurosurgery

#### Chattanooga

Chattanooga Tumor Clinic  
Erlanger Hospital  
Chattanooga, Tennessee  
Time: Tuesday Friday  
Hour: 8:30 a.m. 12:30 p.m.

#### Knoxville

East Tennessee Cancer Clinic  
Knoxville General Hospital  
Knoxville, Tennessee  
Time: Thursday  
Hours: 12:30 p.m.-3 p.m.

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# Journal of the Tennessee State Medical Association

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*With an increasing incidence of sensitivity to penicillin in the population, one wonders if the antibiotics are being employed wisely. This paper outlines the rational use of antibiotics in the contagious diseases.*

## PROBLEMS IN THE TREATMENT OF THE COMMON CONTAGIOUS DISEASES\*

ROBERT B. LAWSON, M.D.,† Winston-Salem, N. C.

The field of infectious disease therapy has advanced so rapidly in the past fifteen years that the change can well be called revolutionary. However, when we think specifically of the common contagious diseases of childhood, the revolution is not so apparent. It seems wise, therefore, to throw the spotlight on this problem and to review the present status of therapy. We will note that antibiotic therapy is of great value for a few diseases, is of limited value for others and is of no value for most.

### CONTAGIOUS DISEASES FOR WHICH ANTIBIOTIC THERAPY IS VALUABLE

#### Scarlet Fever and "Strep Throat"

Despite the fact that the similarity of scarlet fever and the streptococcal throat without a rash is well known, it is still true that the general public has an inordinate fear of the former and a too casual attitude toward the latter. Although the effect of the erythrogenic toxin on a susceptible patient used to add to the seriousness of the disease, at present there is little difference in the clinical picture or complications except for the presence of a rash. Since the hemolytic streptococci can cause either disease, depending on the individual's immunity to the toxin, it is hoped that state and local health authorities will soon change the isolation and quarantine regulations to

fit the known facts, instead of the present situation where the presence of a rash adds two to three weeks to an isolation period! Although there is no need for the artificial separation of scarlet fever from those other cases of streptococcal sore throat without a rash in so far as epidemiology and complications are concerned, it is of value to make a distinction regarding therapy. This is because the therapy of scarlet fever requires a consideration of the antitoxic as well as antibacterial agents. Before we had good antibacterial agents, our only agent was convalescent serum or streptococcal antitoxin which did reduce the duration of the rash and other signs of "toxicity" but did nothing to cut down either the septic or the late "antigenic" complications. Now, the "toxic" component of scarlet fever is so mild that these agents are rarely indicated. On the other hand, it is now well shown that early and continued antibiotic therapy will definitely decrease the incidence of septic complications such as otitis media and cervical adenitis, but also probably will cut down the incidence of the later complications of rheumatic fever and nephritis.<sup>1, 2</sup>

Sulfonamides were used extensively before the advent of penicillin and did reduce the pyogenic complications to some extent. However, it did not affect the late antigenic complications such as rheumatic fever and nephritis and was not nearly as effective in eliminating the streptococci from the throat or in reducing complications as is penicillin.<sup>3, 4</sup>

There is not universal agreement as to

\*Read before the Tennessee State Medical Association, Nashville, April 10, 1951.

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whether the early use of penicillin will prevent rheumatic fever or acute glomerular nephritis. According to Denny and associates a well controlled Army study showed a significant reduction in rheumatic fever following early therapy. This is disputed by Weinstein and his collaborators, but unfortunately their study is not controlled. Although part of this argument may rest on what constitutes rheumatic fever, it seems that the evidence shows that prevention is possible.

The consensus of opinion is that procaine penicillin should be given subcutaneously in a daily injection of 300,000 units for seven to ten days, or a stat injection of procaine penicillin followed by 150,000 units orally every 8 hours. Penicillin is of value for any of the septic complications, but there is no evidence that antibiotic therapy is of value once nephritis or rheumatic fever has made an appearance. Aureomycin is effective, but also should be continued for at least one week.<sup>5</sup>

#### Whooping Cough

Although the widespread practice of immunization is reducing the problem of whooping cough, we must still recognize that it is one of the most important diseases in infancy from the standpoint of both mortality, and also subsequent complications. Symptomatic therapy is very important in order to decrease the cough and vomiting so that the child's nutrition can be kept up. Hyperimmune human serum, the gamma globulin derivative, or hyperimmune rabbit serum has been used especially for the more seriously ill infants with definite benefit. More recently published studies indicate a decrease of morbidity and mortality when either aureomycin or chloramphenicol is given.<sup>6, 7</sup> There is some argument whether the improvement is due to the specific action of the drug on the pertussis organism or to its effect on the secondary invaders. Regardless of the mechanism, the improved clinical results justify the use of either of these drugs orally in doses of 50-100 mg./Kg./day. When vomiting is troublesome, chloramphenicol may be given by rectum even though absorption may be rather variable.

### CONTAGIOUS DISEASES FOR WHICH ANTIBIOTIC THERAPY IS INDICATED TO PREVENT SECONDARY INFECTION

#### Diphtheria

There is no evidence that the diphtheria organism is affected by antibiotics in vivo. However, because of the common finding of hemolytic streptococci in association with clinical diphtheria, the routine use of penicillin is advised in addition to diphtheria antitoxin. Tracheotomy would make the use of antibiotic prophylaxis even more imperative to prevent pulmonary infection. The main emphasis is still on the early administration of antitoxin in doses of 20,000 to 60,000 units. It does not appear that larger doses are necessary. Due to the waning of immunity we will be seeing diphtheria from time to time and must be alert to detect it.

#### Measles

Antibiotics do not affect the course of measles. However, if measles is severe, or occurs during periods of high respiratory disease incidence, prophylactic therapy is indicated to reduce the incidence of otitis media and pneumonia. In so far as possible, the use of gamma globulin for the modification of measles should be encouraged if a definite exposure is known. The resultant disease is usually quite mild and free from most of the purulent complications. Measles encephalitis remains a serious complication and no specific therapy is available.

### CONTAGIOUS DISEASES FOR WHICH ANTIBIOTICS ARE NOT INDICATED

#### German Measles

Except for the problem of German measles in the first trimester of pregnancy causing damage to the fetus, one rarely encounters complications with this disease. The danger of fetal damage points up the fact that one should not try to shield children from certain of the infectious diseases if they are in good health. One immediately thinks of German measles in girls, and mumps in boys in this connection, but also chickenpox and measles may be much more severe as well as inconvenient if contracted in adult life.

### Roseola Infantum

Antibiotics have no value in this infection.

### Chickenpox

This virus also is not affected by any of the antibiotics and therapy is therefore symptomatic. Although one sees an occasional case of varicella encephalitis, complications are uncommon. Therapy is usually directed toward preventing secondary infection of the skin which may give rise to nephritis. Bacitracin ointment is excellent for this purpose.

It is of some interest to mention the relation of herpes zoster to varicella. It is well known that it is the virus of herpes simplex which causes so called "trench mouth" in children as well as "cold sores" etc. This virus is not at all related to the virus of zoster. However, it is less well known that zoster and varicella are related and that zoster may be accompanied by a chickenpox-like eruption or may cause chickenpox in a contact. It is not known just what this relationship is since neither virus can be grown in a susceptible animal, but there is a definite epidemiologic connection. This is of interest when one reads reports of apparent benefit of aureomycin or zoster. Unfortunately these reports are uncontrolled, and, therefore, unconvincing. The doubt of efficacy is increased by definite reports of no effect of aureomycin on varicella.<sup>6</sup>

### Mumps

The evidence that mumps is favorably influenced by antibiotic therapy is based on completely uncontrolled observations in this extraordinarily variable disease. The bulk of the evidence indicates no effect. Studies on the prevention and treatment of orchitis with stillbesterol have been conflicting, but *controlled* studies have shown that this drug has little value.<sup>9</sup> Gamma globulin from serum of convalescent patients would appear to be of value in the prevention of orchitis, but this is not readily available. Occasionally incision of the tunica might be necessary to relieve the pressure on the testicular tissue.

There is some evidence that gamma globulin from pooled serum may provide passive immunity against mumps and,

therefore, may be used to protect exposed susceptibles. It is not desirable to prevent mumps in male children, since this would leave them susceptible to mumps and, therefore, orchitis later in life. However, the recent introduction of mumps vaccine may be of distinct advantage for temporary protection of susceptible adults such as troops. A skin test is available to determine previous contact and, therefore, presumable immunity to mumps virus. In practice one can use the mumps skin test to estimate the immunity of the parents of children with mumps. At present it would seem desirable to attempt passive protection of the adult members of an exposed family with negative skin tests. If available, mumps convalescent serum or gamma globulin from convalescent serum would be preferable to gamma globulin from pooled serum.

In any consideration of mumps we should speak of the meningo-encephalitis that is due to the mumps virus. Not only do we see this as a complication of parotitis but it is also as common without other evidence of mumps. Clinically mumps meningo-encephalitis may be indistinguishable from non-paralytic polio-myelitis. However, a definite diagnosis can be made if an early and late serum are tested for a rise in mumps complement fixing antibodies.

### Summary

In summary, we can see that there has not been a great change in the treatment of the common contagious diseases, with the exception of streptococcal disease, by the introduction of antibiotics. Although almost none of the virus diseases are affected specifically by the new drugs, there has been some beneficial effect through the reduction in secondary infections with susceptible bacteria. However, in order to avoid disappointment, it is still necessary to appreciate the limitations as well as benefits of antibiotic therapy. In the meantime, the time honored therapeutic measures can do much to relieve the distress of these conditions even though no specific drug is available to knock out the inciting agent.



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**Compression of the Trachea and Esophagus by Vascular Anomalies: Surgical Treatment in 40 Cases, Gross, R. E., and Neuhauser, E. B. D., Pediatrics, 7:69, 1951.**

Recognition of signs and symptoms of compression of trachea and esophagus by vascular anomalies has become increasingly important with development of corrective and palliative surgical procedures. Gross and Neuhauser summarize their experience at the Children's Medical Center, Boston, where the malformations to be described were first successfully treated.

**Double Aortic Arch.** The ascending aorta may bifurcate, the two branches encircling the trachea and esophagus before joining to form the descending aorta. Frequently the trachea and esophagus are compressed by the "vascular ring." Symptoms of esophageal and tracheal obstruction appear in infancy or early childhood; pulmonary infection may be superimposed. Roentgenologic studies using contrast media will reveal indentation of the esophagus and compression of the lower trachea at the level of the third or fourth thoracic vertebrae. Surgical treatment consists of division of the smaller limb of the bifurcation.

**Right Aortic Arch with Left Ligamentum Arteriosum (ductus arteriosus).** Should the ascending aorta arch to the right, the ligamentum arteriosum, which connects the pulmonary artery with the first portion of the descending aorta, may pass to the left of the trachea and behind the esophagus to reach the aorta, completing a ring which may con-

strict the trachea and esophagus. Symptoms of tracheal and esophageal obstruction are similar to those caused by double aortic arch, though usually less severe. Division of the ligamentum will relieve the constricting ring.

**Anomalous Innominate Artery.** If the innominate artery arises farther along the aortic arch than normally, it may cause compression of the anterior surface of the trachea as it courses upward and to the right. Symptoms of tracheal obstruction may be severe. Roentgenologic examination after instillation of lipiodol into the trachea will reveal narrowing. Surgical treatment consists of tacking the innominate artery to the sternum to pull it away from the trachea.

**Anomalous Left Common Carotid Artery.** The left common carotid artery may arise low on the aortic arch and in passing upward and to the left may compress the anterior surface of the trachea. Diagnosis and treatment are similar to that for anomalous innominate artery.

**Aberrant Subclavian Artery.** Instead of arising from the innominate artery the right subclavian artery may arise independently from the distal part of the aortic arch. In ascending to the right chest it may constrict the esophagus and cause feeding difficulties. Roentgenologic examination after a barium swallow will reveal a defect in the posterior wall of the esophagus. Treatment consists of division of the aberrant artery. (Abstracted for the Middle Tennessee Heart Association, by Thomas S. Weaver, M.D., Nashville, Tenn.)

*Electroencephalography should be thought of as a clinical diagnostic means still in its youth. That it offers aid in some instances of disease is without question; in others however it provides no help. The correlation between the EEG and the anatomic findings at the autopsy and the operating table must continue to bring this method of diagnosis to its full measure.*

## SOME ASPECTS OF CLINICAL ELECTROENCEPHALOGRAPHY\*

JAMES W. WARD, Ph.D., M.D.,† Nashville, Tennessee

Electroencephalography is a relatively young technique. Hans Berger<sup>1</sup> in 1929 published the first account of electrical potentials from the human brain recorded through skull and scalp. Such potentials had been recorded from the brains of animals 40 years earlier, but they were so small that their acceptance for what they really were had to await the development of high gain electronic amplifiers in the years following the first World war.

During the period since Berger's report there have been numerous papers on the human EEG. These have dealt with the potentials associated with all sorts of clinical states, and from them has come a large amount of empirical information. Rather naturally with such a new and dramatic technique there was at first an over emphasis on the correlation of certain EEG patterns and clinical states, particularly in the field of the epilepsies.

During the last five years there has been a concerted effort to get at the basis of the fundamental mechanisms of the EEG and to determine its significance. Experimental work has suggested a variety of sources of these potentials in normal and pathological states. These range from mass nerve impulse activity in tracts within the brain though highly synchronized synaptic potentials, to potentials thought to be associated with metabolic processes independent of the transmission of nerve impulses. No final evaluation of the part played by any or all of these can yet be made. The functional significance of these potentials also remains obscure. Recent

observations on the relationship of these potentials of cortical origin to activity in the thalamus and reticular substance of the mesencephalon suggest that the potentials may function as a scanning device which is responsible for the level of excitability of the cerebral cortex at any given moment.

In spite of this uncertainty about the origin and functional significance of the electrical variations recordable from the cortex, there are a number of correlations which can be made between these potentials and normal and abnormal physiological and metabolic activities of the brain. Some of these correlations constitute the remainder of this discussion. It is important to recognize at the outset the relative non-specificity of the abnormal wave forms or patterns in the majority of instances where there is abnormal function or altered metabolism.

The EEG in a resting normal adult with eyes shut is quite regular. It is made up of small potential changes occurring at a frequency of about ten per second. The amplitude of these waves ranges from 10 to 75 microvolts or so, as recorded through the skull and scalp. These ten per second waves are strongest in the occipital region and may be influenced by various physiological processes. Opening the eyes blocks them out in most instances so that a relatively flat record occurs. This also occurs during periods in which the patient is making a simple mental calculation.

By these standards all young children's records are abnormal and so different criteria have been worked out for them, and there are different standards for normal children of different ages. In general the younger a child is the less regular the

\*Read before Nashville Academy of Medicine and Davidson County Medical Society, March 20, 1951.

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record and the slower is the dominant frequency. Thus in the normal infant generalized 4-7 per second waves may occur with considerable change in amplitude throughout the tracing.

Physiological sleep and sleep produced by drugs is accompanied by alterations in the record that may be indistinguishable. The changes are progressive from light to deep sleep. The record loses its regularity in light sleep and slow wave forms of high amplitude appear. Some fast frequencies from 12-14 per second occur in bursts. These waves are of high amplitude, exceeding 200 microvolts at times. In deepest sleep the record is made up of high amplitude, irregular slow waves.

Recently, Lindsley, et al<sup>5</sup> have reported the effect of lesions of the midbrain on the EEG of cats. They found that damage to the midline reticular activating system, leaving the primary sensory pathways to the thalamus intact, leads to changes in the EEG similar to those of normal sleep. The animals subjected to this operation react as if they were asleep, lying for long periods with their eyes closed. These animals could be aroused for short periods only by sensory stimuli and during these intervals there were changes in the EEG toward the waking patterns. It may not be without significance that the wave pattern of deep sleep is very much like that seen in some degenerative diseases of the brain wherein the projection systems from the lower centers to the cortex are broken at a different level, for example in Schilder's encephalitis.

The metabolism of brain is based essentially on the utilization of carbohydrates. Fats and proteins contribute little if at all. The R.Q. (respiratory quotient) of the brain is 1. It is therefore not surprising to find that reduced oxygen concentration, reduced blood sugar or altered pH or CO<sub>2</sub> concentration of the blood to the brain are associated with significant changes in the EEG. Furthermore, these three elements interact among themselves in the determination of the degree of abnormality of the EEG under a number of circumstances.

The EEG is affected markedly by either

acute or chronic oxygen deficits. When the deficit is mild the record shows slight slowing and mild irregularity. Greater deficits lead to the occurrence of slower waves with an increase in amplitude. A complete absence of brain waves is the result of further reduction of the oxygen content of the blood. This is reversible if not overly prolonged (5-8 minutes is the limit for the cortex after total withdrawal of oxygen). If the brain is made anoxic by suddenly stopping all blood flow to the head of normal individuals by means of a cuff about the neck inflated with mercury, as described by Rossen, Kabat and Anderson<sup>7</sup> the brain waves become slow within about 6-8 seconds. The subjects lost consciousness at this point. Pressure on sensitive carotid sinuses produce similar changes though the interval prior to the onset of abnormalities in the EEG and loss of consciousness may be longer. Chronic anoxemia associated with asthma and emphysema lead to changes in the EEG similar to those seen in the early stages of marked acute cerebral anoxia.

Many normal individuals who overbreathe for a period of from 3 to 5 minutes will show changes in their EEG characterized by slowing, irregularity and an increase in amplitude. Their records return to normal within a few seconds after overventilation ceases. These results may be associated with a lack of responsiveness of the autonomic nervous system since this reaction is more common in those individuals in whom cardiac acceleration is marked in response to overventilation. Stimulation of the vasodilator fibers of the 7th cranial nerve to the cerebral blood vessels prevents the appearance of slow waves on overventilation in cats (Darrow, et al.<sup>2</sup>). This may be due to the prevention of spasmodic vasoconstriction brought on by CO<sub>2</sub> deficit. Presumably a more nearly normal metabolic environment is then maintained and slow waves do not appear.\*

This type of response is present in some normal individuals with blood sugars at fasting levels. Raising the blood sugar by

\*See pp. 148-151 of "Electroencephalograph," 1950 edited by Denis Hill and Geoffrey Parr; McDonald, London, for more complete discussion.

ingestion of dextrose frequently will prevent the appearance of abnormality in the EEG. This is in marked contrast to the condition in those patients with generalized epilepsy in whom raising the blood sugar will not protect against the effects of reduced  $\text{CO}_2$  in the blood.

The type of reaction for the normal individual, namely protection against the development of abnormalities in the EEG on overventilation after sugar by mouth also occurs in certain metabolic disturbances, such as Addison's disease unless the condition is especially severe. In the latter instance raising the blood sugar as high as 150 mg. % does not prevent the buildup on overventilation. Engel and Margolin<sup>3</sup> suggest that this may be due to the inefficient utilization of dextrose by the brain in this instance.

Mechanical factors enter into the characteristics of the EEG in some cases. Slow growing tumors or space occupying masses such as a hematoma sometimes lead to a reduction in amplitude of the normal EEG by simple displacement of active tissues from the pickup electrodes. Asymmetries in amplitude in the occipital region without abnormal wave forms are seen in some cases of vascular dysfunction, the abnormality being on the side of the low amplitude (Sugar<sup>4</sup>). The explanation for this phenomenon is not at hand but it is seen in some cases of migraine, and in thrombosis of deep lying vessels, and it has been reported in cases of tumors which block the normal supply of blood to a portion of the brain.

Other tumors which are more rapid in growth frequently produce a slowing of the potentials from the brain tissue around the tumor. It may be that these changes are evidence of abnormal metabolic activity of this tissue. The tumor itself is inactive electrically in so far as the EEG is concerned.

Still other tumors like some scars appear to alter the irritability of the surrounding brain tissue and lead to localized paroxysmal discharges in the area (Fig. 1), some or all of which may be associated with peripheral manifestations in the form of localized or generalized epileptic seizures.

The EEG in such instances is usually made up of episodal bursts of spike-like waves of much greater amplitude than in the intervening portion of the record.

Then, there are those conditions associated with generalized paroxysmal abnormalities in the EEG. Such records are seen most frequently in various forms of epilepsy. Unlike the records with generalized abnormalities seen on overventilation in the presence of a low blood sugar in normal individuals, the abnormal potentials in epileptics are not ordinarily affected by raising the blood sugar level. Not only can the abnormalities in idiopathic epilepsy be elicited or intensified by overventilation particularly in the petit mal type, but the records of such patients can be worsened by means of small doses of convulsant drugs such as metrazol and also in some instances by "driving," i.e., by repetitive bright light stimulation via the optic system.

The differences between grand mal epilepsy and uncomplicated petit mal epilepsy are frequently emphasized by the EEG as they are by the response of the two conditions to different drugs and to overventilation. The one pattern which approaches a degree of specificity in electroencephalography is the spike and dome of uncomplicated petit mal epilepsy (Fig. 3). With grand mal or in idiopathic epilepsy wherein both small and large attacks occur there is usually a less regular pattern made up of sinusoidal slow waves and so-called "slow spikes" (Fig. 2). But even the "Spike and dome" pattern is not diagnostic because there are on record cases of its occurrence occasionally in other conditions both in the human and in experimental animals.

There is another group of patients in which the pediatrician is most interested. It is not uncommon to find epileptic children who are mentally retarded. These children under adequate therapy show clinical improvement with respect to their seizures and this is accompanied in many instances by clearing of their sensorium. Prior to treatment these children may have interseizure records which are paroxysmal, a degree of abnormality approaching that



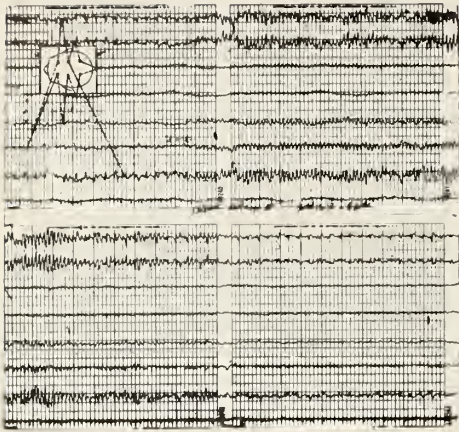


Figure 1

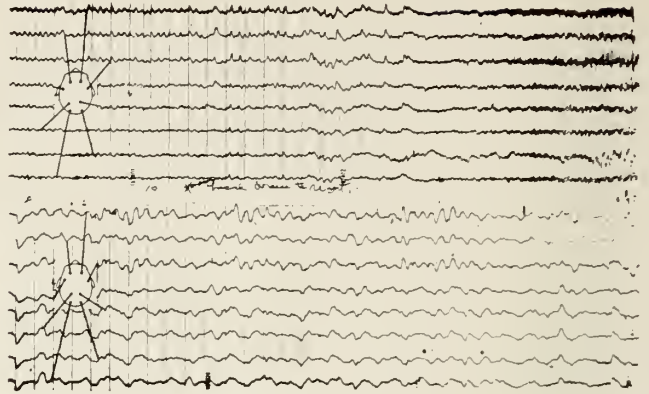


Figure 2

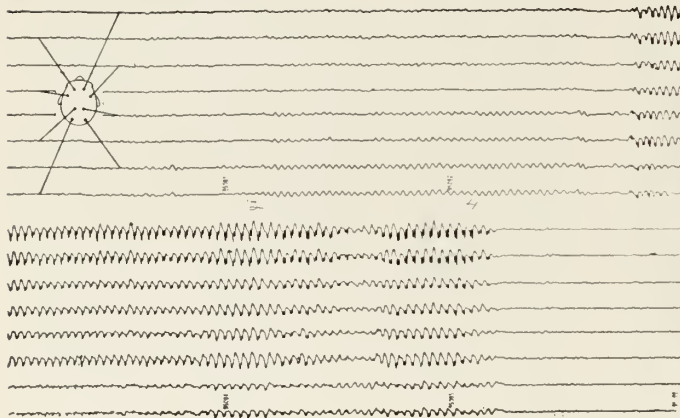


Figure 3

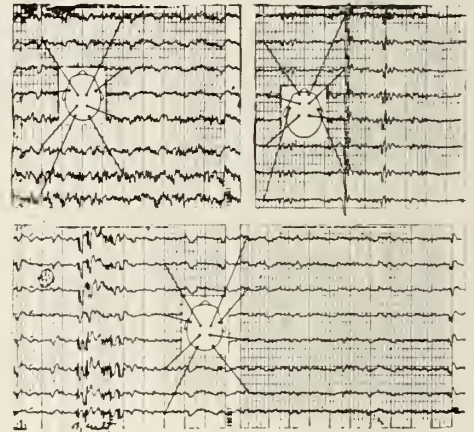


Figure 4

seen in patients in clinical status epilepticus (Fig. 4a). There are also children with such records who have never had any evidence of clinical epilepsy (Fig. 4, b and c). Instead they may or may not offer mental retardation or behavior difficulties as presenting symptoms. We have seen some of the former respond remarkably to "anti-convulsive" therapy by becoming mentally alert and tractable. This is not a universal reaction in these particular problem children, however. Various investigations have come to entirely different conclusions concerning the effectiveness of anticonvulsive therapy (Walker and Kirkpatrick,<sup>9</sup> Kennard and Willner,<sup>4</sup> and Pasamanick.<sup>6</sup>) Although in some instances behavior problems appear to be a manifestation of some form of epileptic variant on the basis of the EEG and the suggestive reaction to medication, much work still remains to be done before a final opinion can be rendered.

Finally, it should be pointed out that neurotic and psychotic states of themselves yield no consistent deviation from the normal EEG. Abnormal changes do occur in some instances but most often these and the attendant abnormal behavior may be attributed to a more fundamental state. Thus the toxic psychoses as well as those associated with metabolic disturbances may accompany an abnormal EEG (Engel and Margolin<sup>3</sup>) and focal disturbances may occur in the EEG when the psychosis is associated with a tumor, for example of the frontal lobe.

Reconsideration of the above suggests not only some of the things which the EEG is capable of doing, but equally important what it can not do. It is rare indeed that the EEG can make a diagnosis in an absolute sense because of the non-specificity of the patterns and the fact that a certain percentage of entirely normal subjects show abnormalities in their EEG

(Fig. 5). Rather its capabilities lie in the presentation of evidence indicating that further investigation into the patient's condition is warranted. Obviously, the history and physical findings are essential for proper evaluation of the EEG.

One can not predict in a given patient what a particular condition will elicit in the EEG. The EEG, however, on a statistical basis, may be evidence for or against toxic or metabolic disturbances, focal or diffuse lesions of the central nervous system or epileptic states (Fig. 5).

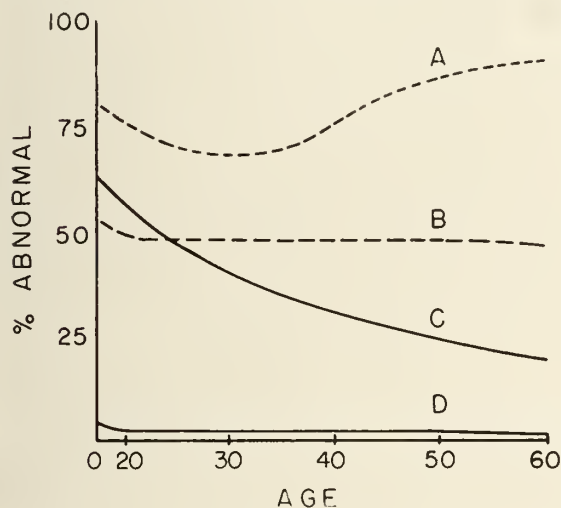


Figure 5

#### Description of Figures

Fig. 1. The EEG of a 69 year old man with multiple myeloma. Spiking recorded during seizure from region of lesion in right posterior frontal area (bipolar recording—lines 1 and 2. Unipolar recording—line 5). Focal seizure consisted of jerking in left angle of mouth and left arm lasting 20 seconds illustrated in the right upper and left lower quadrants of the figure.

Fig. 2. The EEG of a 54 year old woman in which a generalized seizure was elicited by over-ventilation. Beginning of seizure marked by spiking record at right in the top 8 lines. Lower 8 lines of record taken during post-seizure period when patient was mentally depressed and dis-oriented. Note the slow waves characterizing this period.

Fig. 3. The EEG of a 14 year old female with long history of grand mal and petit mal attacks. She had a family history of petit mal seizures. The record shows an episode of "spike and dome" waves during which the patient stopped over-ventilation and did not respond to commands.

Fig. 4. *Upper left tracing. (a)*

A 6 year old white female with history of

generalized seizures for 1 year and personality changes for 3 months following encephalitis. The record is irregular with high amplitude occipital waves, some of them slower than normal.

*Upper right tracing. (b)*

A 5 year old white male with history of over-activity and mental retardation without evidence of overt seizures of any sort. Episodal slow spikes and slow waves characterize the tracing.

*Lower tracing. (c)*

An EEG of an 8 year old white female who was described as showing marked mental deficiency. No seizures of any sort had been observed by her family. The entire record was filled with episodal activity like that shown in the sample. This child improved remarkably on dilantin. She has since developed an abnormal pattern containing "spike and dome" waves and has momentary blank spells.

Fig. 5. The percentage of abnormalities in EEGs under various conditions. A. Cerebral tumors. B. Chronic trauma. C. Idiopathic epilepsy. D. Normal subjects (after W. Grey Walter).

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*After a consideration of the history of fistula-in-ano, and the embryology and anatomy of the anal region, the author reports an instance of the rare carcinoma originating in a fistulous tract.*

## CARCINOMA ARISING IN FISTULA-IN-ANO\*

CARROLL H. LONG, M.D., Johnson City, Tennessee

I consider it a distinct honor to have been invited to address this distinguished gathering tonight. Medicine in Knoxville has long been on a high scientific plane and various practitioners of the art in this city have added luster to American medicine. The heritage which you gentlemen have had left to you by the founders and teachers in the various medical schools which have lived and died in Knoxville makes this city the logical Medical Center for East Tennessee. It is the sincere hope of many of us that with the developing population concentration in this area there will be possible in the near future a new medical school subsidized by the State or by some large charitable fund which will exert leadership for the men of medicine in this entire area.

### History

Fistula-in-ano attracted the attention of the early surgeon because it was a superficial lesion which could be attacked by the limited armamentarium and knowledge of a primitive scientific age. Curing a disabling lesion by surgery without risking the life of the patient was not too common an opportunity in the centuries before antiseptic and aseptic technics.

In the earliest records of medical history are discussions of anorectal disease and descriptions of operative procedures.<sup>1</sup> Hippocrates in 400 B.C. described an examination of a patient in the course of which he used a rectal speculum made of a shell. The Latin historian, Celsus, in the first century A.D. mentions fistula. The Arabian surgeon, Albucasis, described fistulectomy in 1013 A.D. John of Arderne, the earliest of the English surgeons, brought this operation to a high degree of perfection during the 14th century and prepared an illustrated treatise on fistula-in-ano which describes a surgical pro-

cedure which with few alterations is the same which is generally being used today. One would judge him to have been a successful man inasmuch as his minimum fee for fistulectomy was 100 shillings;<sup>2</sup> the wealthy he charged a fee of 40 pounds and a life annuity of 100 shillings annually. The immensity of these fees can be judged when it is considered that the ordinary laborer's pay in England at that time was one penny a day.

Buie<sup>1</sup> quotes Hume as his authority that Henry V, King of England during the 15th century, suffered from an anal fistula which the surgeons of his day were not able to cure and as a result of which he died at the age of thirty-five.

Perhaps the most fabulous fistula-in-ano was that lesion in the person of Louis XIV of France. It seems that the monarch consulted his surgeon early but refused to submit to surgery until subsidized clinical research in an institution set up for that purpose in Paris had proven to the King's satisfaction that medical methods of treatment were of no avail. Thereupon, Louis was operated upon successfully by the Royal Surgeon, Felix. It was said that this worthy practitioner received as his fee a farm, three hundred thousand livres and the noble title of Seigneur de Stains. This was a fortune which well indicated the gratitude of the Royal Patron.

### Anatomy and Pathology

It would seem that the chronic irritation afforded by the prolonged presence of a fistula-in-ano might well stimulate the disordered growth of epithelial cells which we call cancer, but this is denied by Ewing<sup>3</sup> who mentions Kraske as his authority in stating, "there is no satisfactory evidence that cancer develops in tissues altered by hemorrhoids, fistulae or cicatrices." Ewing further states "Kraske could find no grounds for assuming that misplaced embryonal tissue is concerned in the develop-

\*Read before the Knoxville Academy of Medicine, June 12, 1951, Knoxville, Tenn.

ment of rectal carcinoma." This oft-quoted dictum has been denied by Rosser and others<sup>4-11</sup> who report thirty-seven personal and collected cases of carcinoma arising in fistulous tracts near the anorectal junction. Rosser postulated that carcinoma may develop in relation to fistulae by one of two mechanisms: by invasion of the peri-anal tissue by carcinoma followed by secondary infection, or by the presence of a long standing fistula which by irritation stimulates a malignant process. For the assumption that a given carcinoma has arisen in a fistulous tract he advances the following criteria: (a.) long history of fistula, (b.) the absence of a tumor mass in the rectum or anus, (c.) an internal opening in an anal crypt or non-malignant ulcer. Dukes<sup>11</sup> calls attention to the frequency with which histo-pathologic study indicates the presence of colloid carcinoma in the anorectal region and indicates that the association of colloid carcinoma with a fistulous tract is one of the peculiarities of the pathology of cancer in the anorectal region.

The case reports to which I have called attention are based upon clinical criteria alone, and not all the authors are convinced that carcinoma arises in fistulous tracts independent of the rectal mucosa. Fitchet<sup>6</sup> states that the tumor which he reported was "in direct continuity with epithelial down-growth lining a small fistulous tract. This extends several millimeters into the subcutaneous tissue." Lynch and Gross<sup>8</sup> report a case of mucinous adenocarcinoma of the perianal spaces but found no evidence that the tumor arose either from rectal mucosa or from the squamous or transitional lining of fistulous tracts. Ducassi and Smith<sup>10</sup> report two cases fulfilling Rosser's criteria but believe that the evidence is insufficient to doubt or modify Kraske's dictum.

These opinions are based in part upon the generally held assumption that there is no epithelial tissue in this area except that of the anus and rectum; however, contrary evidence has been developed by several writers. In 1880 Herrmann and Desfosses<sup>12</sup> described deep glands in the

terminal portion of the rectum as normal findings in the dissecting room. These authors indicated that such deep glands exercise an important role in the production of fistula-in-ano. They believed that the deep glands of the lower rectum represent the mucous glands of the primitive cloaca and have undergone a progressive diminution in the extent of distribution in the ascending the animal scale.

Mention of the anal ducts have been rare in more modern literature. In 1931 Tucker and Hellwig<sup>13</sup> reported an extensive clinicopathological study of biopsy and post mortem material taken from the anorectal region. An unexpected finding was that in uncomplicated cryptitis the mucosa of the Morgagni crypts was not the primary site of infection but was usually normal. They found that the pathologic processes had originated in narrow, duct-like, simple or complex structures opening into the crypts. In the examination of post mortem specimens, not showing inflammatory changes, well developed tubular structures could be demonstrated running into the submucosa and sometimes into the internal sphincter muscle. The ducts were lined by stratified squamous epithelial cells near their openings into the crypts; deeper the lining changed to transitional epithelium and finally to columnar epithelium in two or more layers in the depth of the crypts. In some infected ducts a layer of columnar cells was present only in the blind ends, the other portions of the duct walls being entirely devoid of epithelium but lined by granulation tissue. To explore the biological significance of these findings the authors examined histologically the anal regions of rabbits, guinea pigs, cats and dogs. In the cat and dog the same structures, more fully developed, were found. In both species the anal ducts communicated with definite glandular acini lying within the internal sphincter muscle or between the external and internal sphincters. In the rabbit a voluminous alveolotubular gland was found within the external sphincter muscle. The authors speculate that these glands may produce a lubricant for the feces or that they may be small glands



which fulfill some function in sex attraction, and they conclude that it is justified to believe that the anal ducts in man are vestiges of complex glandular organs found in the lower order of animals.

Harris<sup>14</sup> in a well considered exposition of certain aspects of the embryology of the intestinal tract states that it is well known that mucous glands occur at the contiguous margins of columnar and squamous epithelia and that such glands tend to be of the structure of convoluted mucous glands or of sweat glands. His explanation of the presence of these structures deep to the muscularis mucosae is based upon the staggered differentiation of the various muscle layers of the rectum. In the embryology of the rectum the circular muscle is differentiated in the 18 mm. embryo, the longitudinal muscle in the 38 mm. embryo, the muscularis mucosae in the 187 mm. embryo and the glandular structures in the 19 mm. embryo. The internal and external sphincters differentiate relatively early before the embryo reaches 30 mm. (Fig. 1) Because

of the late development of the muscularis mucosae and the imperfect development of the lower portion of the longitudinal muscular coat, the columnar glands near the ano-rectal junction may grow into the loose tissue within the internal sphincter and into the limiting connective tissue which separates the internal sphincter above from the external sphincter below. Such glands arrive at and actually penetrate the internal sphincter, external longitudinal coat and even spread superficial to, deep to or within the levatores ani thus reaching the true pelvis or the ischio-rectal fossas before the muscularis mucosae is developed. In postnatal life they appear to penetrate the muscularis mucosae but really have extended beyond the limits of this membrane before its development. It is these "erratic anal glands" which Herrmann and others believe to be the sites of origin of most fistulae-in-ano and of carcinomata arising in fistula-in-ano.

#### Case Report

I shall report briefly a case representing

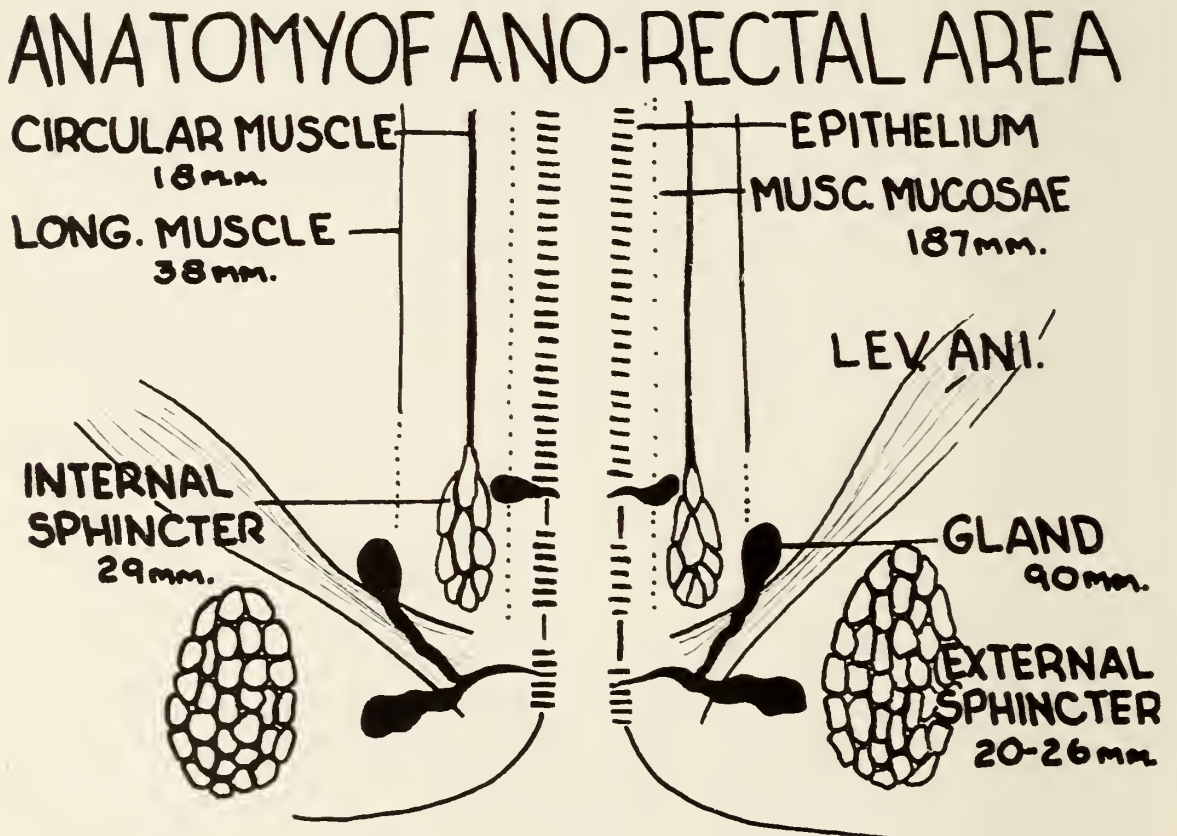


FIG. 1



Fig. 2 Surgical specimen showing rectal and anal surfaces with probe passed through fistula.

an adenocarcinoma apparently arising in a fistula-in-ano of long standing.

An obese, white female, age 47, was admitted to the Appalachian Hospital December 28, 1947, complaining of a painful mass in the perineum. For more than ten years she had been under my care because of an extensive fistula-in-ano with multiple external openings in both buttocks and the perineum, which she refused to have treated surgically. On one occasion, November 1946, she had been admitted to the hospital for incision and drainage of a perineal abscess. At the time of her last admission it was found that she had not only a fistula-in-ano but a recto-vaginal fistula as well.

Protruding from the largest external opening was a cauliflower-like mass and exuding around it was a quantity of mucoid secretion. There was no evidence of neoplasm within the anus, rectum or vagina. Tissue removed in biopsy was reported as adenocarcinoma with mucoid degeneration. On January 7, 1948, an abdominoperineal resection of the rectum with the involved areas of the perineum and ischioanal fossas and the posterior wall and most of each lateral wall of the vagina was performed. (Fig 2.) Careful examination of the specimen after its removal by the pathologist confirmed the clinical judgment that no neoplastic tissue was to be found at the internal openings of the fistulous tracts. Histologic examination showed the cell pattern to represent gelatinous carcinoma.

The patient was last seen in the Tri-County Can-

cer Clinic on April 19, 1951, at which time no evidence of recurrence was found. Two superficial fistulous tracts, extending far out into the buttocks, which were not removed at the time of the definitive surgery still persist but the patient refuses to have these incised or excised. The vagina has remarkably reformed itself from thin scar tissue extending from the remaining anterior vaginal wall.

### Summary

I have called attention to the controversy existing concerning the origin of fistula-in-ano and have indicated the embryological considerations upon which thoughtful investigators have postulated the theory that malignant epithelial tumors can arise from the depths of fistulous tracts in the ano-rectal region. One case has been added to the small group found in the literature which satisfy Rosser's criteria for carcinoma originating in fistula-in-ano.

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## STAFF CONFERENCE

### CARCINOMA OF THE LUNG

**DR. WALTER DIVELEY:** The first successful pneumonectomy for carcinoma of the lung was performed by Dr. Evarts Graham in April, 1933; the patient was alive and well sixteen years after operation. Many surgeons have become able to do pneumonectomies with a relatively low mortality rate yet the salvage rate in patients with carcinoma of the lung is at the present time disappointingly low. In large reported series of cases up to 50 per cent of the patients are obviously inoperable by the time the diagnosis is established; of the 50 per cent who come to operation roughly 20 per cent are found to be unresectable. In the remaining 30 per cent who are suitable for pulmonary resection the operation must be classified as palliative in about 15 per cent because of the extent of the lesion. Thus, only in the remaining 15 per cent can a cure be hoped for.

It is obvious that if we are to make any real progress in curing this lesion we must make the diagnosis much earlier in the course of the disease than we have in the past. There are three important factors which contribute to the late recognition of the disease. First is the period of time that elapses between the onset of symptoms and the request for medical help; this interval is often several months in length. The symptoms may seem trivial to the patient and may at first be only slightly changed from ones he has experienced before. These early symptoms often include cough and wheezing and the patient fails to be impressed by their persistent and progressive qualities. The second factor is the time interval between the patient's first visit to a doctor and the time the correct diagnosis is established; a greater amount of time is often lost in this way than is lost by the failure of the patient to consult a doctor soon after the onset of symptoms. The diagnosis is often not made early because carcinoma of the lung is not suspected to sufficient

degree. This is in great part due to the fact that there is a lack of appreciation among the medical profession as a whole as to the frequency of this lesion. The third factor pertains to the natural course of the disease; in some patients, who have had no pulmonary symptoms, the pathological features of the lesion are such that even when the patient is first seen, successful surgical treatment cannot be carried out. This may be due to the degree of local extension or to regional or distant metastasis which have occurred early. Some of these patients would show sufficient x-ray changes to make one suspect carcinoma of the lung. Periodic x-ray examination of the chest would diminish the size of this group of patients.

Dr. McSwain will you comment on the incidence of carcinoma of the lung?

**DR. EARTON McSWAIN:** The most recently available statistics in the United States were compiled in 1948. The leading causes of cancer mortality among males showed intestines, including rectum and anus, to be first in frequency, stomach second, and lung third. Cancer of the lung is responsible for 13 per cent of all male deaths in the United States and for 11 per cent of all male deaths in Tennessee. Incidence statistics on tumors seen in the Surgical Pathology Laboratory at Vanderbilt University Hospital from 1925 through 1948 show cancer of the lung to be ninth in frequency; during this same period of time cancer of the lung was the fifth most frequent malignant neoplasm among males. The figures have changed in the past three years. Omitting skin, which is ordinarily not a very lethal cancer, large bowel, including rectum and anus, is still first in frequency with a total of 96; lung is second with 50 in males and 16 in females for a total of 66. Cancer of the lung is more frequent in the white than in the colored race; it is over three times more frequent in males than in females and the peak decade of frequency is between 50 and 60 years of age.

**DR. DIVELEY:** Time does not permit a detailed discussion of the pathological aspects of carcinoma of the lung. We are concerned with early diagnosis and this de-

pendes to a great extent upon the symptoms produced by the lesion. Location of the tumor is of great importance as far as symptoms are concerned. Seventy to 80 per cent of lung carcinomas occur centrally in the major divisions of the bronchial tree and produce symptoms relatively early; 20 to 30 per cent of these tumors occur more peripherally in the lung and produce symptoms relatively late. The central tumors can often be seen through the bronchoscope but the peripheral tumors cannot be seen bronchoscopically. The central tumors often produce characteristic changes in the x-ray film but the tumor itself is usually not seen; peripheral tumors may often be seen in the x-ray film as a distinct mass.

DR. JOHN SHAPIRO: The cell types which we see in carcinoma of the lung is of interest. It seems to me that the simplest classification of these tumors would be the most helpful; on this basis, they should be divided into squamous cell carcinoma, adenocarcinoma, and undifferentiated carcinoma. Over 75 per cent of these tumors are squamous cell in type. Most of the undifferentiated carcinomas are probably of squamous cell origin, the cells being so undifferentiated that recognition as a squamous cell carcinoma is quite difficult from the microscopic section. In general, it may be stated that the more differentiated the tumor is the slower metastases will occur; this is just a generalization and often does not apply to specific cases. It is well known that carcinoma of the lung tends to metastasize early; it spreads to tracheo-bronchial lymph nodes, liver, bone, brain, adrenal gland and even to the kidney. Intracranial metastasis deserve special mention. We have seen several patients who were operated upon for what was believed to be primary brain tumors; microscopically these tumors turned out to be metastatic carcinomas and at autopsy were shown to have come from the lung.

DR. DIVELEY: We have three cases of carcinoma of the lung which will be presented by Dr. Conerly.

DR. DAWSON CONERLY: The first patient is a 46 year old white laborer who was first ad-

mitted to Vanderbilt University Hospital in June of 1947. He had had a febrile illness four months prior to admission associated with cough, blood-streaked sputum and pleuritic pain in the left chest. These symptoms subsided on antibiotic therapy but three months prior to admission he had a second similar episode which left him with a persistent cough productive of foul sputum and recurring pain in the left chest. He lost thirty pounds in weight during his illness. X-rays of his chest on admission (Figs. 1 and 2) showed a large cavitory lesion near the left hilum with a surrounding area of infiltration; the lateral film located this cavity slightly below and just anterior to the hilum. He produced a small amount of purulent sputum which was negative for tubercle bacilli. Bronchoscopy revealed no intrinsic bronchial lesion. At operation a mass was found in the lingular segment of the left upper lobe which extended into the hilum of the lung. A pneumonectomy was performed. Microscopically the lesion was a squamous cell carcinoma; no tumor was seen in the lymph nodes which were removed. This patient is getting along well at the present time which is four years and five months following operation.

DR. ROLLIN A. DANIEL, JR.: The diagnosis of carcinoma of the lung was not proved prior to operation. We made a clinical diagnosis of carcinoma on the basis of the x-ray films because the cavity lies so close to the hilum of the lung. Primary pyogenic lung abscesses almost always occur more peripherally in the lung. Such a centrally located abscess suggests a suppurative process secondary to a destructive lesion of a proximal bronchus; the most likely cause of such a picture in a 46 year old man is a bronchogenic carcinoma. Therefore, I would always suspect a carcinoma in any patient who has a cavity in this location.

DR. DIVELEY: This patient had a centrally located tumor which produced symptoms relatively early. The diagnosis of carcinoma should have been suspected sooner than it was.

DR. CONERLY: The second patient is a 64 year old housewife with an eight months history of weakness and dull, constant pain in the left chest. She experienced a persistent, non-productive cough for four months prior to admission to the hospital and one month before admission she coughed up a small amount of bright red blood. X-rays of her chest (Figs. 3 and 4) revealed a fan-shaped area of density extending from the hilum of the left lung up to the level of the second rib anteriorly. On bronchoscopy a mass was seen to be occluding the left upper lobe bronchus; the



mass was so situated that it could not be biopsied. Bronchial washings failed to reveal neoplastic cells. A left pneumonectomy was performed one week ago and she has done well since operation. Microscopically, the tumor is squamous cell in type; no tumor was seen in the removed peribronchial lymph nodes.

DR. DIVELEY: This patient had a centrally located tumor which was symptomatic; the symptoms she experienced should make one think of carcinoma of the lung as being the best diagnostic possibility. The changes present in the x-rays of her chest (Figs. 3 and 4) are due to atelectasis and obstructive pneumonitis secondary to occlusion of the upper lobe bronchus.

DR. CONERLY: The third patient is a 35 year old white male who was admitted to Vanderbilt University Hospital in July, 1951. For three years he had had progressively severe pain in the interscapular region, in the right shoulder, and down the posterior aspect of the right arm. The pain was not increased by movement of the cervical spine or shoulder. His only pulmonary symptom was a slight, hacking, non-productive cough. X-ray of the cervical spine showed some narrowing of the intervertebral space between C-5 and C-6. Cervical myelograms failed to reveal evidence of a herniated intervertebral disc. Cervical traction did not relieve his symptoms. X-rays of the chest were finally made which showed a large, rounded area of increased density in the posterior apex of the right chest (Figs. 5 and 6). At operation, a huge nodular mass almost completely filled the apex of the right chest cavity; the tumor had invaded the chest wall to such an extent that resection of the lesion was impossible. Microscopically the tumor was an undifferentiated squamous cell carcinoma.

DR. DIVELEY: This is an example of a peripheral carcinoma of the lung; these tumors often grow quite slowly and produce slight or no pulmonary symptoms until late in the course of the disease. This man's tumor had obviously been present for a long time and x-ray changes in the chest must have existed for many months.

DR. HERBERT C. FRANCIS: From the radiologists point of view, carcinoma of the lung can simulate almost any type of lesion that we see. There is a great deal of argument as to whether carcinoma of the lung is more frequent now or whether the apparent increase in frequency is the result of better diagnostic procedures. Carcinoma of the bronchus in its early stage may give

no x-ray signs. I have seen a few cases of proven carcinoma of the lung with no x-ray evidence of it at all. The x-rays do not lie but our interpretation of this is very frequently erroneous. We must always think of carcinoma of the lung. Clinical information is essential for intelligent interpretation of changes seen in the x-ray film.

DR. DIVELEY: What is the value of expiration films to show an area of relative emphysema resulting from partial bronchial occlusion?

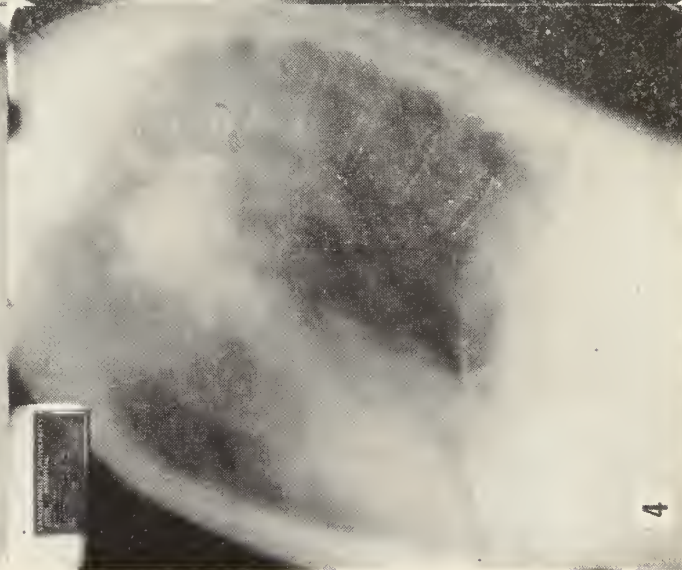
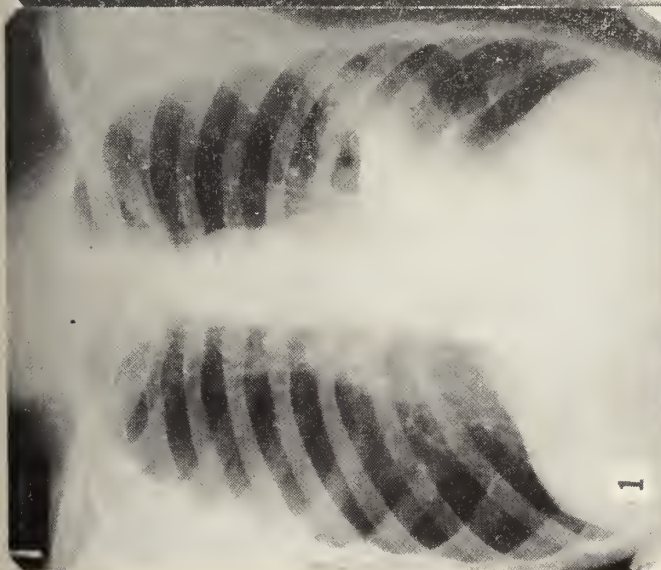
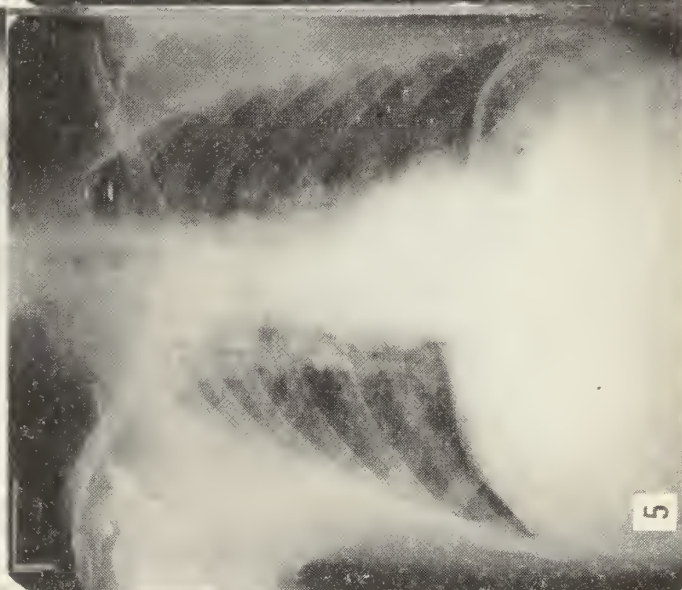
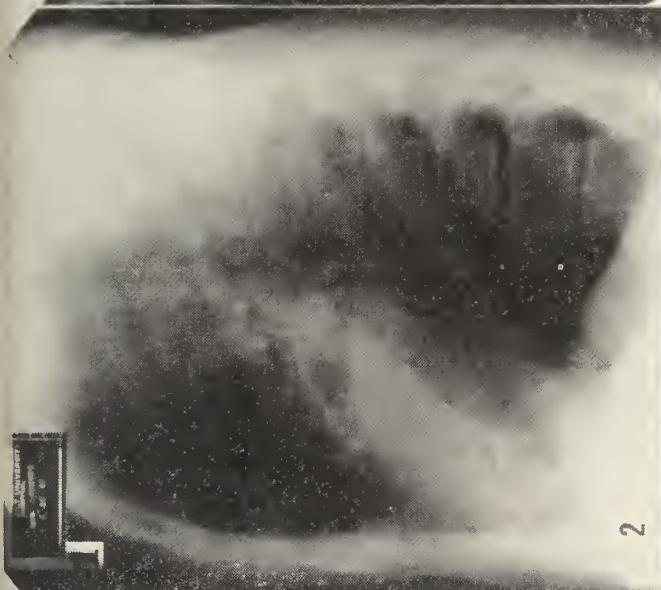
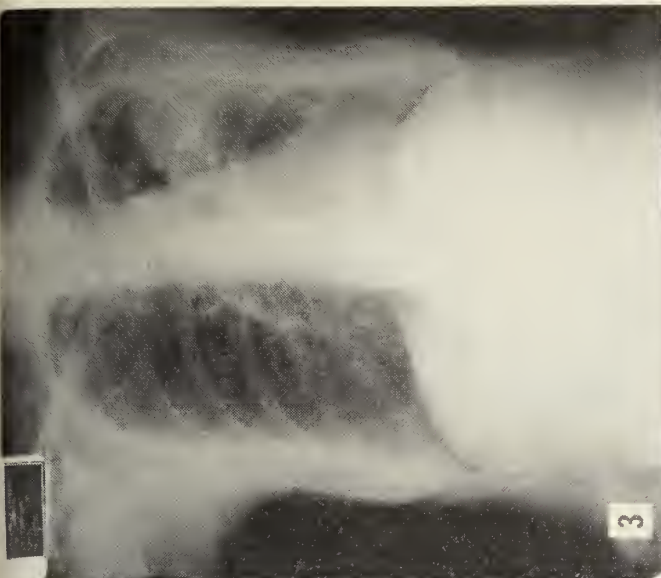
DR. FRANCIS: In some instances it is a helpful procedure. When there are minor changes in the lung, I think the expiration film may show these changes more clearly.

DR. HOLLIS JOHNSON: One must suspect carcinoma of the lung or early diagnosis of the lesion will not be made. Persistent cough is often an important early symptom. I think one symptom which has not been stressed enough is wheezing; the majority of these tumors are located in the larger bronchi and wheezing will occur when there is partial bronchial occlusion. Repeated attacks of pneumonia should make one suspect carcinoma of the lung. Hemoptysis and persistent or recurring symptoms of pulmonary infection should make us think first of carcinoma of the lung.

DR. DIVELEY: Carcinoma of the lung does not produce a characteristic symptom complex until relatively late in the course of the disease when the chances of being able to effect a surgical cure are greatly diminished.

Nothing has been said about the value of the physical examination in the diagnosis of carcinoma of the lung. Early lesions of the central type may produce changes in breath sounds and wheezing may be heard over a portion of the lung field. But if one waits until the diagnosis is obvious from physical examination we have waited so long that a cure cannot be effected.

It should be emphasized that the symptoms of obstructive pneumonitis secondary to bronchial occlusion by tumor will often be temporarily alleviated by one of the antibiotics. Such improvement often





leads a physician to forget about the possibility of carcinoma of the lung and much valuable time may be lost before the correct diagnosis is made.

Bronchoscopy is of extreme importance in establishing the diagnosis of carcinoma of the lung. When the lesion is suspected bronchoscopy should be done without delay. Seventy to 80 per cent of the tumors are located in a major division of the bronchial tree and this large group of centrally located tumors can usually be seen through the bronchoscope.

DR. CLARENCE C. WOODCOCK, JR.: The use of retrograde telescopic lens which is inserted through the bronchoscope allows us to carefully inspect the bronchi to the upper lobes and to examine more completely the superior segmental bronchi of the lower lobes. The limitations of bronchoscopy are greatly diminished by using this special instrument.

DR. SHAPIRO: We believe that with an adequate specimen and careful examination we can make the diagnosis of carcinoma of the lung either from sputum or bronchial washings in a high percentage of cases. It is necessary that the secretions come from the region of the neoplasm. It takes up to 15 minutes to carefully examine one slide and several slides may be examined from any

one patient. It is a time consuming but valuable aid in diagnosis of the lesion.

DR. DIVELEY: We must remember that failure to see a tumor on bronchoscopy and the absence of tumor cells in the examined secretions do not exclude the possibility of carcinoma of the lung. If, after all other diagnostic measures have failed to establish the diagnosis, one cannot accurately and honestly tell the patient he does not have a carcinoma then exploratory thoracotomy should be strongly advised.

DR. R. H. KAMPMEIER: The students present know what I am about to say. It is all well and good to sit here and talk about the value of the chest x-ray as a screening measure for pulmonary malignancy, but the mobile unit is not likely to reach anyone more often than once in twelve to fifteen months. A lot may happen in that time. I keep emphasizing that the answer to the cancer problem is in the office of the family doctor and not in the cancer clinic. It is the history then, plus whatever suggestive physical findings may be present, which provides the means for the doctor to get his patient to the expert radiologist and bronchoscopist in the hope of making an early diagnosis and offering the surgeon a chance of curing the patient.

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**Clinical Consideration of Benign Ovarian Cystomas.** Randall, C. L. and Hall, D. W. *Am. J. Obst. & Gynec.*, 62:806, 1951.

Preservation of ovarian tissue is essential and desirable. This would seem to indicate ovarian resection rather than oophorectomy when neoplasms are benign, and suggests scrutiny of indications for the so-called prophylactic removal of ovaries. In an effort to determine how often preservation of ovarian tissue proves to have been an unwise course, the authors have been following a number of women operated upon for ovarian neoplasms in the Buffalo General Hospital during the years 1936 to 1947, inclusive. When ovarian tumors are discovered in women over 50 years of age 40 per cent prove to be benign. The incidence of the bilateral occurrence of benign ovarian cystomas or the ultimate incidence of ovarian malignancy does not warrant the removal of an opposite normal-appearing ovary merely as a prophylactic measure. The chance of bilateral pathology, not grossly appreciable but already developing in the other ovary, indicates careful

inspection, palpation and bisection of the opposite ovary before it can be regarded as normal and uninvolved. The chance of the development of pathology in the opposite ovary at a later date should cause the authors to favor resection of benign cystomas, rather than oophorectomy, whenever it is possible to preserve even a shell or portion of ovary on the involved side. The possibility of continued oogenesis adds reason to preserve even small portions of any ovary. Moreover, in their material to date, they have found nothing to suggest the recurrence of an ovarian neoplasm in the ovarian tissue remaining after resection of a benign cystoma. The danger of peritoneal implantation from a papillary cystadenoma opened at surgery, like the danger of disseminating endometriosis by the resection of a chocolate cyst, appears to have been over-emphasized. Resection of the ovary should be considered more often and oophorectomy employed less routinely in the management of benign ovarian cystomas. (Abstracted by Hamilton V. Gayden, M. D., Nashville, Tennessee.)

## CLINICOPATHOLOGIC CONFERENCE

### Knoxville General Hospital

**DR. RALPH MONGER:** We have a very interesting and rare case to present today. Dr. Charles Sienknecht first saw this case when he became ill in a local hotel, and I am going to ask him to present his findings when he first observed him.

**DR. CHARLES SIENKNECHT:** The case of Mr. H. T., age 62, white male, electrician.

**PRESENTING COMPLAINT:** The patient was first seen in his hotel room on the evening of January 5, 1951, complaining of severe pain in the left costovertebral angle which radiated downward and forward into the left lower quadrant of the abdomen and into the left testicle.

**HISTORY OF PRESENT COMPLAINT:** The pain had been sudden in onset while working at Oak Ridge as an electrician, approximately four hours previously, with the exact radiation of the pain as it was at the time when he was first seen. There had been no nausea or vomiting, although nausea had been present four days previously, along with lower abdominal cramping of a non-specific nature, unaccompanied by diarrhea. This episode had been eased by taking paregoric. The patient had been told by his associates that he had become "white" and great beads of perspiration had broken out on his forehead at the time he was stricken by the pain. He was given an injection to ease the pain by a physician at Oak Ridge and he was brought by car to his hotel room here in Knoxville.

There was no history of any previous similar episodes. However, two weeks prior to this time, while the patient was traveling on a train from Los Alamos, New Mexico, he had noticed vague discomfort in his left side but thought it was positional in character as it had quickly gone away. The patient also stated that approximately twenty-five years previously he had had a "kinking of the left ureter" which was successfully treated and relieved at that time. He had noted no blood in his urine at any time.

**PAST HISTORY:** The past history was essentially negative; there was no history of venereal disease.

**FAMILY HISTORY:** Essentially negative.

**PHYSICAL EXAMINATION:** Pulse rate 72 and regular; respirations 28; blood pressure 162/98; temperature 98.2° F.

**E.E.N.T.:** Essentially normal except for constriction of the pupils due to the previous administration of an opiate which made examination of the eye-grounds impossible.

**Neck:** The neck was essentially negative. There was no venous distention. The thyroid was not palpable, nor lymph nodes.

**Chest:** The thorax was symmetrical; there was bilateral equal expansion. The lungs were clear and resonant throughout.

**Heart:** The heart was within normal limits of size, with the point of maximum intensity lying in the fifth intercostal space in the mid-clavicular line 9 cm. from the midsternal line. The heart sounds were normal except for a slightly increased aortic second sound. No murmurs were heard.

**Abdomen:** The abdomen was of normal contour; normal peristaltic waves could be heard. There was increased muscle spasm over the entire left side of the abdomen, but only of moderate degree, and deep palpation of the abdomen was easy to perform. The liver, kidneys and spleen were not felt. There was a large mass palpable just to the left of and above the umbilicus, which was firm, slightly tender and felt to be about 6cm. in diameter. This mass was pulsating and it was felt that an expansile pulsation could be elicited with ease.

**Genitalia:** Negative.

**Neurological:** Negative.

**Bones and Joints:** Essentially negative to limited examination.

**DIAGNOSIS:** A diagnosis was made of aneurysm of the abdominal aorta, and it was thought that pressure phenomena from this were responsible for the pain which this patient had.

**DISPOSITION:** At this point the patient was returned to his referring physician and hospitalization was advised.

**DR. WILLIAM SWANN:** The patient was seen at the Fort Sanders Hospital some four month ago, being admitted to the hospital as an emergency with severe abdominal pain. This pain was located in the left side of the abdomen and radiated into the left groin and left testicle. On examination of the abdomen there was a grapefruit size mass in the mid-abdomen. Apparently the mass did not pulsate but showed evidence of transmitted pulsation from the abdominal aorta. An x-ray film of the chest showed a fusiform enlargement of the descending thoracic aorta.

The patient was explored with a diagnosis of aneurysm of the abdominal aorta and of the thoracic aorta. A combined thoraco-abdominal incision was used and exploration revealed a grapefruit size saccular enlargement of the abdominal aorta. On the surface of this enlargement there was a purplish discoloration which was interpreted as recent dissection of the aneurysm. The left ureter was incorporated in this mass, and this finding undoubtedly accounts for the characteristic radiation of pain in this patient. Exploration of the thorax revealed a fusiform aneurysm of the descending thoracic aorta extending from the sub-clavian artery to just above the diaphragm. There was no evidence of any dissection within this aneurysm.

Operation consisted of wrapping of this aneurysm using Ivalon sponge, as recommended by Dr. Drendley at Mayo Clinic. The patient was dis-



charged from the hospital approximately two weeks after surgery, and later returned to his work at Oak Ridge as a technician.

The patient was admitted to the hospital again four months after his operation in a semi-moribund state. He was extremely dyspneic, apprehensive and there was fluid in both pleural cavities. It was thought on admission that the patient was in cardiac failure and possibly had ruptured his thoracic aneurysm. Treatment directed at cardiac failure induced no response from the patient, and he expired less than twenty-four hours after admission.

DR. DENTON NORRIS: What was your impression of death at this time?

DR. SWANN: I thought that the man died of cardiac failure and most likely had ruptured his thoracic aneurysm.

DR. JAMES PROSE: Was this death a sudden affair or was there a prolonged chronic illness?

DR. SWANN: The onset of this terminal episode was sudden in nature gradually progressing to death in slightly less than twenty-four hours.

DR. HARRY BISEL: What was this man's blood pressure?

DR. SWANN: There was known to be hypertension of several years duration, his blood pressure having been as high as 220/130. At his last hospitalization, the blood pressure on admission was 180/100. It is of interest to note that the blood pressure was always equal or approximately equal in both upper extremities, but was some thirty points lower in the right leg than in the left leg. The pain was noted on the left side, whereas the reduction in blood pressure was noted on the right side.

DR. NORRIS: Was there anything in his history that gave any suggestion of the etiology of this aneurysm?

DR. SWANN: This man had no history of syphilis. The blood Kline and the blood Wasserman were both negative. He had severe peripheral arteriosclerosis of his vessels, and our impression was that both the thoracic and abdominal aneurysms were on the basis of arteriosclerosis.

DR. NORRIS: Had he any suggestion of the emboli thrown off from this aneurysm.

DR. SWANN: I think not. Dorsalis pedis pulsations were palpable bilaterally

throughout his illness. There were no cerebral symptoms.

DR. PROSE: Then you feel that this is an arteriosclerotic individual, who developed a dissecting aneurysm as a result of tear of some atheromatous plaque; and that the cause of death was rupture through the wall of the aneurysm, or a small perforation and a slow oozing rather than profound hemorrhage and sudden death?

DR. SWANN: I think this man's original symptoms were due to dissection within the abdominal aneurysm, and we noted this finding at operation. As to his terminal episode I believe he again had an episode of dissection. This time within the thoracic aorta.

DR. NORRIS: How long previous to surgery had this man had symptoms referable to an aneurysm?

DR. SWANN: The duration of symptoms in this man was only a short time—less than a week. He had always been active and worked as a technician on the atomic bomb project since its inception at Los Alamos. He only became disabled from abdominal pain a week prior to admission to the hospital, when a doctor was called to see him at his hotel.

DR. AARON: Dr. Swann, what do you feel we have to offer these patients now with the present methods of wrapping and etc?

DR. SWANN: The treatment of arteriosclerotic aneurysm is discouraging. This, of course, is a degenerative disease, and the process is not limited to the local manifestation we see as an aneurysm. It is a generalized disease, and even though we may control the aneurysm by wrapping or other technics the patients will generally die of some other manifestation of arteriosclerosis, as did this patient. It simply remains to be seen if the patient will die of coronary sclerosis or cerebral thrombosis or some other manifestation of this generalized degenerative process.

DR. PROSE: There has been quite a bit of work by Abbott in Atlanta at Emory University in the use of cellophane. I understand that some of this work has been discouraging, however your method seems

to be similar to the procedure of cellophanes wrapping. Why did you use Ivalon in preference to the cellophane? What is the difference in the use of this and the use of cellophane?

DR. SWANN: The fundamental difference in these two materials is that the cellophane is an irritating substance which excites the fibrous tissue reaction; whereas the sponge is not irritating and serves as a framework for the growth of fibrous tissue about the aneurysm. The sponge is much easier to use. It can be placed easily, moulded to the shape of the lesion and sutures very nicely. I have had difficulty in keeping cellophane next to the aneurysm, even when it was cut in rather small strips and multiple sutures taken. This difficulty is not met within the use of this plastic sponge. As you note from the slides a considerable amount of fibrous tissue has grown into the lattice work to support the wall of the aneurysm.

DR. RALPH H. MONGER: I will now show you some kodocromes and the gross specimen.

The body was well developed and well nourished. There was a long, well healed, surgical scar extending across the abdomen. When the abdomen was opened there was found a large mass in the center extending from the bifurcation of the iliac arteries to above the umbilicus. This also extended for some distance into the right and left side of the peritoneal cavity. When the thorax was opened, there was a very large mass filling the mediastinum and extending over into both the right and left pleural cavities. The left pleural cavity was completely filled with blood. The liver, spleen and kidneys, other than congestion, showed no abnormalities.

The interesting pathology is in the aorta. Here you see the autopsy specimen. You will note that the heart is normal in size and shape. The coronary arteries are normal. The thickness of the left ventricle is 8 mm.; the right ventricle is 2.5 mm. thick. The circumference of the valves are as follows: mitral 10 cm. aortic 8 cm., tricuspid 12 cm., and the pulmonary 8.7 cm. The aorta shows a very large thoracic

aneurysm. There is very extensive thrombosis in the lumen of the aneurysm. This is dark red to grayish red in color, and has a friable consistency. On the posterior wall of the aneurysm is a dissection of the wall of the aorta and a large ruptured area on the left posterior surface. The circumference of the aorta above the aneurysm is 2 cm., while that of the aneurysm is 36 cm. Just above the abdominal aorta the circumference of the aorta is diminished. Here we see this large aneurysm in the abdominal aorta. There is an Ivalon sponge pack completely encircling this aneurysm. (Fig. 1) Between the outer part

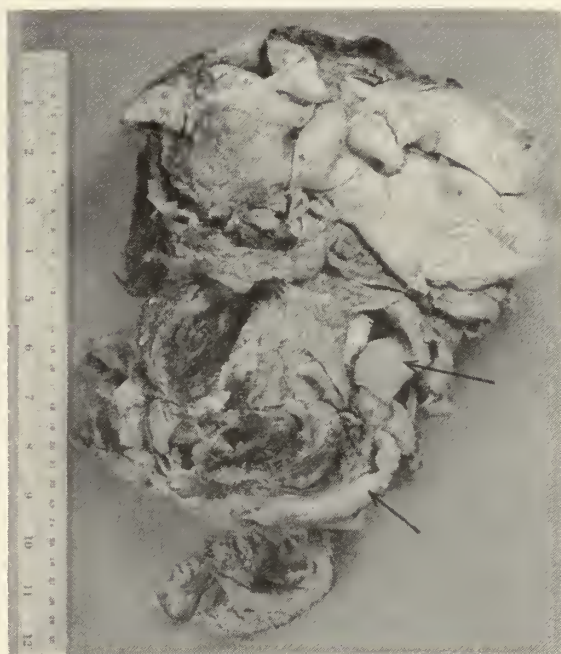


Fig. 1. Heart and aorta. arrows indicate Ivalon sponge about the aneurism of the abdominal aorta which has been opened.

of the tissue and the pack is a small amount of cloudy liquid content. The circumference of this aneurysm is 30 cm., and there is also a very large thrombus present here. The intimal surface of the aorta is variable in appearance. Here are areas, varying in size from 1 cm. down to a few mm., that are opaque. Between these is a wrinkling of the intimal surface. Here in the abdominal part are areas of calcification with some pale yellow and some opaque plaques.



Sections taken from the different parts of the aorta for microscopic study show findings characteristic of syphilitic aortitis. Many areas along the intimal surface show fibrosis and hyalinization of the intima. In the media there are irregular collections of lymphoid and plasma cells in a perivascular situation around the vasa vasorum. There are occasional mononuclear cells. There is some interruption of the muscularis and elastica. In the adventitia

there are very marked perivascular cellular infiltrations and fibrosis of the vasa vasorum.

In conclusion then, we have two large aneurysms of the aorta, one of the thoracic and one of the abdominal aorta. The thoracic one had a terminal dissection with rupture and fatal hemorrhage into the left pleural cavity. In both there was very extensive thrombosis. Microscopic examination proves this to be syphilitic.

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**The Management of Acute Injuries of the Neck.**  
**Bull. Committee on Trauma, Am. Coll. Surgeons.**

The necessity for early evaluation and proper treatment of injuries of the cervical region cannot be overemphasized. The usual techniques of first aid for injuries are modified by the absolute necessity for leaving clots undisturbed and foreign bodies in situ. Snug circular bandages should not be employed around the neck.

The final treatment of cervical injuries depends on the structures involved, in that special management is necessary for those having some involvement of the air passages, major vessels, cervical cord, pharynx or esophagus. Adequate cleansing, debridement, hemostasis and suture should be accompanied by prophylaxis for tetanus, and antibiotics when indicated, in injuries not involving the major structures.

Injuries to the air passages may be the result of (1) direct trauma, (2) aspiration of blood or foreign body, (3) extrinsic pressure from edema or hemorrhage. An immediate tracheotomy may be a lifesaving measure in such injuries. Tracheotomy is preferable performed as an elective procedure with adequate skin preparation, novocaine anesthesia and a proper size canula with an obturator. All of these may be modified by necessity. Grasping the trachea between the thumb and forefinger, a longitudinal midline incision is made so that the trachea may be opened through two tracheal rings preferably at least two rings below the cricoid cartilage. An emergency tracheotomy may be performed employing any type of rubber, glass or metal tube. Suctions with bulb syringe and catheter, or simple posturing of the head and body will help to empty the bronchial tree.

Injuries to the great vessels of the neck should be

treated by either manual compression or a pressure dressing not encircling the neck until such time as more adequate treatment may be instituted. Adequate care requires: (1) blood for replacement, (2) intratracheal anesthesia, (3) oxygen, (4) adequate assistance, (5) proper suture material, nursing care, and lighting. Arterial lacerations should be repaired if possible with #00 silk on an atraumatic needle. This can only be accomplished after having gained control of the carotid artery above and below the site of injury.

Injuries of the cervical cord are to be discussed in a subsequent article. Mention should be made at this time that manipulation of the neck in such injuries may result in sudden death. Care should be taken in moving and examining patients in whom cord injuries are suspected.

Injuries of the pharynx or esophagus may be found on inspection, suspected from the course of a missile, or made apparent when complications develop. Such injuries require only simple exposure of the site of injury with decompression of the fascial spaces or mediastinum in most instances. Small wounds heal better without suture but large rents should be repaired to prevent the persistent leakage of secretions. Nasal catheter feedings or a temporary gastrostomy or jejunostomy for feeding may serve to maintain nutrition without interfering with healing of the wounds.

Treatment of all the injuries mentioned must be accompanied by sound surgical and nursing care. The fact that injuries to other parts of the body may be overshadowed by the cervical injuries must be remembered, and the casual survey of the initial examiner must be followed up by a thorough study by the personnel who are charged with the responsibility for the care of the patient. (Abstracted by B. F. Byrd, Jr., M.D., Nashville, Tenn.)

## PRESIDENT'S MESSAGE

*Reflections at Yuletide*

*The birthday season of the Great Physician is near. His ministry of healing in the Judean hills and on the shores of the Sea of Galilee was a part of His total ministry to men.*

*When it is recalled that the Master often used the art of healing for strengthening His spiritual ministry, we physicians should reflect upon the motives behind our own services.*

*Can we say—as Christ said—"I came not to be ministered unto, but to minister"?*

*Then, too, the Yuletide is the time of good cheer, fond appreciation and happy greetings.*

*May this Christmas, in a world of conflict and fear, bring you good cheer, good courage, and inner strength.*

*Let us approach the New Year with confidence and with a new dedication to the ministry of healing, and let us do it in the spirit of Him whose birth we celebrate this beautiful season.*

*Ernest G. Kelly*



# THE JOURNAL

OF THE  
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DECEMBER, 1951

## EDITORIAL

### THE NEW INDEX

The readers of the Journal of the Tennessee State Medical Association should note the revision of the Index appearing in the current issue. Heretofore, if the reader had a desire to look up some item which had appeared in the Journal contents in the past he might have had difficulty in doing so. In the first place subject matter was not indexed in a consistent fashion, and abstracts and editorials were not catalogued by subject matter. Now the reader may find items indexed under the name of the organ and/or disease. (Thus pulmonary tuberculosis may be found under lung and under tuberculosis.) The subject matter of abstracts and editorials is listed similarly. Your editor hopes this will facilitate and stimulate the use of the Journal of the Tennessee State Medical Association as a reference work. Much appears in its pages useful in everyday practice.



### THE AUTOPSY

The physician is a highly selected person in our American society. He reaches the

top layer of our most intelligent citizens through a highly competitive system of selection in the great majority of instances. Only one endowed with a high level of intelligence, emotional stability and ability to apply himself to a difficult task can hope to attain an M. D. degree.

When he takes his place in a community he as a rule becomes an influential citizen, a fact not often appreciated to the fullest by the busy doctor. He makes a good living as a rule and is busily engaged in service dedicated to the relief of pain and illness.

In addition to these activities, your editor feels that each, having a background of scientific study, should ask himself on December 31st, "What iota have I contributed to the advancement of medical science?" Some doctors are so situated that they carry on fundamental or clinical research. Others have the opportunity to train students and house officers, carrying out one of the tenets of the Hippocratic Oath. For those who may answer, "I would like to make a contribution but have no opportunity", your editor has a suggestion.

The important place of the necropsy in the advancement of medical science need not be discussed in these columns. There is not a single reader who does not know that the frontier of medical knowledge is constantly pushed forward through the study of disease processes and their effects on the patient who has succumbed. Who, as a rule, has the more intimate relationships with the family—the friend of years, the family doctor, or the specialist, that stranger in the medical center or city hospital! Who will have the most weight in asking for permission for an autopsy, especially in the less intelligent families? The answer is obvious. Within recent weeks your editor spent a couple of hours and much telephoning to arrange for the admission of a seriously ill indigent patient to a hospital. The visiting and house staff spent many hours in an attempt to save this patient's life. He died some days later. He had been followed previously in the clinic and on the wards with much study by x-ray and other means. All added

up to a puzzling medical situation. The answer would have been given by a necropsy which was refused. Might the home town doctor make a contribution in such instances?

On December 31, your editor suggests that a New Year's resolution be made by all physicians to live up to their heritage and pay back a bit at least to the medical science which has given them their position and livelihood. When the family reports to their doctor that "John" or "Lucy" is not doing too well in the hospital or medical center and may be expected to die, he can make his contribution by saying, "If he (or she) dies be sure and ask for an autopsy to learn why he did not respond to treatment." Or, if the doctor sends a patient off to a hospital advising the family of a serious prognosis, to say, "If he (or she) should pass on, be sure to ask for a postmortem examination for the diagnosis has not been clear, and we must learn more about the case." Furthermore, no one is in a better position than the family doctor to throw the lie into the teeth of the local undertaker who discourages autopsies. Finally, should we not all maintain our integrity of thought by checking our daily practices!

Was it Osler who said in effect, *Show me a doctor who is always right and I will show you one who never attends an autopsy on his patients.*

R. H. K.



## "DOCTOR SHORTAGE"

The farm and labor groups especially are convinced, it seems, that there is a deficient supply of medical service and that there is a shortage of physicians, particularly in rural areas. They continuously harp on greater availability of medical care at less cost.

Paul deKruif<sup>1</sup> in his usual enthusiastic style of writing in a recent issue of the *Reader's Digest* has tried to meet this cry for "more doctors" on a lay level. This is

satisfactory for popular consumption. (Reprints of this article are made available to physicians for distribution from doctors' offices.)

But we as a profession must give some thought to a much more considered evaluation of facts as recently outlined by Dean Davison<sup>2</sup> of Duke University. We must face them rather than bury our heads in the sand. He points out that the alliance of farmers (dependent upon government to "share the risk of low farm prices") and labor (dependent upon government "to share the risks and costs of unemployment, pensions and social security") though of opposing interests (high farm prices and cheap goods as against cheap food and high wages) will keep pressing Congress for some form of health legislation. He agrees that we have more physicians in proportion to population than any other country, but in terms of *American psychology* he indicates that this is no argument since we also have more automobiles and tooth brushes. And it appears that paying, as well as charity groups will expect to use more medical attention, automobiles and tooth brushes than in other parts of the world.

On this basis Davison feels we must face the fact that thirty million persons—farmers and those of certain low income groups—are going to keep on in their demands for what they consider to be a shortage of physicians.

It is difficult to measure the demand for increased medical service. To most of us, it seems obvious that the physician of today can see and treat more patients efficiently than in past decades. Whereas lobar pneumonia in the patient at home meant one or two visits daily for probably two weeks fifteen years ago, now with penicillin available the visits need be but a few. A couple of months ago your Editor drove through a very familiar section of Iowa. He drove from one small town to another in less time than driving from his home to Vanderbilt University Hospital, yet 35 to 40 years ago he used to make calls to this town with a member of his family—a doctor—in a buggy behind a team of horses—and in mud this might well be a four- or five-hour trip. As

<sup>1</sup>DeKruif, P., What About This "Doctor Shortage," *Reader's Digest*, June, 1951.

<sup>2</sup>Davison, W. C., Health Legislation and the Shortage of Physicians, *J. Am. M. Coll.*, 25:396, 1950.



the car raced past the dozens of familiar farmhouses and through the several small towns of this region, and as my recollections of hours spent in buggies and in bob-sleds came to mind, the efficiency of the rural practitioners, in such areas at least, must in 1951 be many times that of 3 to 4 decades ago. Yet Davison points out, and no doubt correctly, that the psychology of the human is such that he wants a doctor close by for emergency calls, even though he ignores his small-town physician for the city doctor in the daytime because of good roads. He points out that if we could but educate patients to make office calls rather than to demand home calls, the entailed efficiency and better care, because of technical assistance and diagnostic instruments, would provide more time for doctors to see patients.

Davison presents a strong argument for his belief that there will be a continued demand for more physicians. He points out that (1) publicity concerning the advances of medical science (and here we must agree that enthusiastic and ill-advised writers like deKruif have increased the demand), (2) expansion in public health services, (3) greater needs of an aging population and (4) the rapid extension of voluntary hospital and medical care insurance all conspire to raise a greater demand for medical service and thus for more doctors.

The medical profession and medical schools must face this demand for more doctors as a fact, whether justified or not, which will not be downed. First, the public should be taught to utilize as much as possible the doctor's office or clinic or hospital for better medicine and conservation of the doctor's time. Secondly, an increased supply of doctors would through economic pressure, Davison believes, force some of them to settle in rural areas. He suggests that more doctors could be produced by increased enrollment in medical schools either by larger annual classes or by an accelerated program. (The building of new medical schools would produce no new graduates for some 10-12 years.)

Members of the medical profession would not agree to the lowering of our present standards maintained in the medical schools.

Yet the average practitioner has no appreciation of the plight of the medical schools in maintaining an adequate teaching staff. The obvious reason is that salaries are so inadequate in these inflationary times that even the man who might like to engage in a scientific career is forced into practice so that he may support his family. These circumstances have reached such a serious state that in the preclinical fields the usual instructional pyramids are upside down. Flexner found in 1949 that there were in our medical schools 139 professors of anatomy, 102 associate professors, 87 assistant professors and only 20 instructors of anatomy. The payment of better salaries to teachers in medical schools, and an increase in their numbers must go hand in hand with any proposal which may be made to increase the number of doctors.

Just as we of the medical profession are meeting a demand for security against the cost of medical care by voluntary insurance plans, so too will we need to use our wits to still the insistent demand for more doctors, and especially in the rural areas.

R. H. K.

## DEATHS

**Herbert Acuff, M.D.**, internationally known Knoxville surgeon, died at his home in Knoxville on November 2, 1951. Dr. Acuff was the organizer, president, and surgical director of the Acuff Clinic. In addition to holding membership in a large number of medical and surgical societies, Dr. Acuff was active in civic and religious affairs. At the time of his death he was president of the International College of Surgeons. Aged 65.

**Dr. C. C. Fisher**, who had practiced medicine at Dibrell more than forty years until his retirement six years ago, died Saturday, November 10, 1951. Aged 86.

## PROGRAMS AND NEWS OF MEDICAL SOCIETIES

**Nashville Academy of Medicine**

The Academy held a dutch dinner meet-

ing on November 13 at the Vanderbilt University Hospital cafeteria. The scientific program was presented in the amphitheater with the Academy members being guests of the Middle Tennessee Heart Association. The guest speaker was Dr. Charles P. Bailey of Philadelphia, Professor of Thoracic Surgery at Hahnemann Hospital. His subject was "Closed Intracardiac Digital Surgery."



### Knoxville Academy of Medicine

The November 6 meeting of the Academy was addressed by Dr. W. C. Crowder of Maryville on the subject, "Should We attempt to Keep the Diabetic Sugar Free?" Dr. Crowder's paper was discussed by Dr. Philip Thomas.



Dr. David W. Barrow of Lexington, Kentucky, was scheduled to address the Academy on November 20 on the subject, "Treatment of Varicose Veins and Stasis Ulcers." The attractive Bulletin gotten out by Dr. Ralph H. Monger, the Secretary, stated that the attendance at the Academy meetings had been above par in recent months.



### Memphis and Shelby County Medical Society

The Society met in regular session in the auditorium of the new Pathology Building on October 2. The Society was welcomed to their new meeting place on behalf of the University of Tennessee by Dr. Frank L. Roberts. Fifty-Year pins from the Tennessee State Medical Association were presented to Doctors E. C. Ham, H. B. Jacobson, and Eumon Taylor. The scientific program consisted of (1) a case report by Dr. James A. Wallace on "Electro-Shock in Late Pregnancy", (2) a paper on "Tertian Malaria in Korean Veterans Treated with New Antimalarial Drugs", by Dr. W. D. Boggan, Jr., and (3) Dr. M. J. Tendler read a paper on "Acute Appendicitis with Rupture".



The scientific program at the October 16 meeting of the Society was preceded

by an announcement by President Stinson that the November 20 meeting would be devoted to a discussion about securing an executive secretary for the Society. The scientific program consisted of a case report by Dr. J. Wilson Julich on "Arthralgia as the Initial Symptom of an Intrathoracic Tumor". Dr. Alfred R. Henderson presented a paper on "Surgical Treatment of Mitral Stenosis: Commissurotomy", and Dr. Nobel Guthrie discussed "Management of Chronic Renal Insufficiency".



### Henry County Medical Society

Upon invitation, Executive Secretary V. O. Foster met with the Society at its regular business meeting on November 20th. The problem of maintaining the social and scientific interests of the Society was discussed. The Executive Secretary outlined procedure for forming a four or five-county society strictly for social and scientific purposes whereby the charters of the counties concerned would not be surrendered. Decisions reached were as follows:

(1) That the Henry County Medical Society invite physicians in adjoining counties to be their guests at a dinner meeting on January 15 for the purpose of exploring the desirability of forming such a society, and

(2) That further planning be determined according to the outcome of the January 15 meeting.

The Executive Secretary will meet with the group again on January 15.



### Chattanooga—Hamilton County Society

The society held a dinner meeting at the Read House on November 8 with Dr. John Goode of Dallas, Texas, Professor of Surgery, Southwestern Medical School, as guest essayist. Dr. Guy Francis is Program Chairman and Dr. James Hamilton is President.



### Consolidated Medical Assembly

Forty-six physicians attended the regular monthly meeting of the Assembly on



November 6 at the New Southern Hotel in Jackson. Dr. S. M. Herron, Secretary, presided in the absence of President J. W. Oursler. The guest essayists were Dr. John W. Baird, Assistant Professor of Dermatology, University of Tennessee School of Medicine, whose subject was "Drug Eruptions," and Dr. John W. Hughes, Associate Professor of Medicine, UT, speaking on "Management of Myocardial Failure". The papers were discussed by Drs. Norris Shelton and G. B. Wyatt.

## MEDICAL NEWS IN TENNESSEE

### Adoption of Infants in Tennessee

*It seems that some of our members do not have a clear concept of the adoption laws and thus are not in a position to counsel those who seek advice. Therefore Dr. R. H. Hutcheson, Commissioner of Public Health, was asked to clarify the matter, though the Department of Public Health has no part in the administration of the law which is in the hands of the Department of Public Welfare.—Editor.*

In order to explain the procedures in Tennessee for adopting a child in accordance with Chapter 202 of Public Acts of 1951, several questions have been answered briefly. For details in connection with the procedures it is necessary to refer to the law. This report gives only the principal steps for the adoption of a child.

#### What is the Purpose of the Law?

The primary purpose is to protect *children* from unnecessary separation from parents, to protect them from adoption by persons unfit and to protect them from interference by natural parents after adoption.

The secondary purpose is to protect the *natural parents* from hurried decisions, to protect *foster parents* from assuming responsibility for a child about whose heredity or mental or physical condition they know nothing and to prevent later disturbance of their relationship to the child by the natural parents.

#### How is a Child Surrendered for Adoption?

Surrender of a child is made before a judge in chambers of Chancery Court or

Circuit Court by the parents or guardian. For a child born out of wedlock and not legitimated, consent of the mother is sufficient. The child is surrendered to the Department of Public Welfare or to a licensed child-placing agency. On September 1, 1951, the licensed agencies in Tennessee were:

Family Service Agency, Chattanooga, Children's Bureau of Knoxville and Knox County, St. Peter's Orphanage, Memphis, Children's Bureau of Memphis and Shelby County, Tennessee Children's Home Society, Nashville.

#### Who Can Adopt a Child in Tennessee?

A person wishing to adopt a child does so through the Tennessee Department of Public Welfare or one of the licensed child-placing agencies. A person 21 years of age may petition the Chancery Court (or Circuit Court) to adopt a minor child. If the petitioner has a husband or wife living, such spouse joins in the petition. The petitioner or petitioners must have resided in Tennessee for one year preceding the filing of the petition.

#### What is the Procedure with a Petition for Adoption?

A petition for an adoption is submitted to the Chancery Court (or Circuit Court) by a lawyer representing the petitioner or petitioners. The law lists eleven items of information regarding the petitioners and the child which must be stated on the petition. The surrender of the child and consent for the child to be adopted is filed with the petition along with the consent of the Department of Public Welfare child-placing agency.

The court orders the county director of public welfare or a licensed child-placing agency to investigate the home conditions of the petitioners and the condition and the antecedents of the child, to determine whether the proposed adoptive home is suitable, and to investigate other circumstances or conditions bearing on the adoption. This report is to be filed within 30 days.

#### What is an Interlocutory Decree?

Upon the examination of the written report of the investigation, the court may issue an interlocutory decree of adoption giving the care and custody of the child

to the petitioners. Such interlocutory decree must be issued within six months of the filing of the petition. The court orders the county director of welfare or a licensed child-placing agency to supervise the child in its adoptive home and report to the court on the placement. Until the final order is made the child is a ward of the court having jurisdiction. The petitioning adopting parents act as guardian to the child.

#### **When is the Final Order of Adoption Completed?**

If no appeal has been taken from any order of the court, the court must complete or dismiss the proceedings by entering a final order within two years after the filing of the petition. A final order must not be entered earlier than one year from the date of the interlocutory decree except as given below.

(a) If an appeal is taken the proceedings must be completed within one year from final judgment upon the appeal.

(b) Upon examination of the written report, the court may waive the entering of the interlocutory decree and the probationary period and grant a final order of adoption when the child is by blood a grandchild, a nephew or niece of one of the petitioners, or is the stepchild of the petitioner.

(c) Upon examination of the written report, the court may shorten the probationary period between the granting of the interlocutory decree and final order of adoption by the length of time the child resided in the home of the petitioner prior to the granting of the interlocutory decree, provided that the child was placed in the home of the petitioner by the Department of Public Welfare or by a licensed child-placing agency but no final order shall be entered until the child has resided in the home of the petitioner for a period of one year except as provided in section (b) above.

#### **How Does the Child Get a New Certificate of Birth?**

The law provides for the preparation of a new certificate of birth by the Division of Vital Statistics of the Tennessee Department of Public Health for an adopted child in the adopted name, *after the*

*final order of adoption.* In order to prepare a new certificate, it is necessary that the Division of Vital Statistics have a certificate of birth on file (birth in Tennessee) showing the true facts at the time of birth. This certificate of birth, which gives the correct facts regarding parentage, should be filed by the doctor in attendance at the time the birth occurs. If no record is on file, a delayed certificate must be filed. The form, Request for a New Certificate of Birth by Adoption, is completed by the adopting parents to give the factual data necessary for the new certificate. A Certificate of Adoption (or a certified copy of the adoption decree in out-of-state adoption) is submitted to the Division of Vital Statistics by the court clerk with the Request for a New Certificate of Birth by Adoption. The new certificate of birth shows the new name of the child and data regarding the new parents. The date and place of birth are as recorded on the original certificate.

#### **How is the Child Protected so that the Facts of His Birth are Concealed?**

After the final order of adoption or the final order dismissing the proceedings, all records and other papers relating to the proceedings in the office of the clerk of the court, in the office of the Tennessee Department of Public Health and in the state and county offices of the Department of Public Welfare, must be placed and remain under seal. These records can only be opened by order of the court, or, in a special instance where a certified copy of the original certificate is needed for legal purposes, by order of the Commissioner of Public Health.



#### **Postgraduate Program in Internal Medicine**

The first circuit of the course in Internal Medicine closed the week of November 9, on Friday night in Selmer, Tennessee. Centers for the circuit were Jackson, Brownsville, Covington, Bolivar, and Selmar. The course outline is as follows:

##### **Lecture No.**

- I. Geriatrics
- II. Rheumatism



- III. Cortisone and ACTH  
(Adrenocorticotrophic Hormone)
- IV. Obesity and Diabetes
- V. New Developments in Cardio-vascular Disease
- VI. Peripheral Vascular Diseases:  
Arterial and Venous
- VII. Antibiotic Drugs: Their Uses  
and Their Abuses
- VIII. Functional Gastrointestinal  
Conditions
- IX. Liver Diseases
- X. Virus Infections

Interest in attendance upon these courses is usually represented upon an average per centage of attendance of those registered. This average has run high for this course, being 76.12% for the Circuit.

The next district circuit is in south middle Tennessee and includes the centers of Columbia, Franklin, Fayetteville, Pulas-ki, and Lawrenceburg. Instruction opened in this circuit the week of November 12. The number of free and private consultations has steadily increased down to the last of the teaching in Circuit 1. Many physicians have the instructor see patients in hospitals after his night lectures. More and more lectures of these programs are being held in the many hospitals built in county seat towns and centers, giving excellent lecture hall facilities not previously available to physicians in past years.

Doctor Dee is now preparing some slides of interest with several of his lectures in future sessions. Some of these will be re-

sults of studies he himself had made prior to his coming to Tennessee. Some interesting cases have been presented and demonstrated in his clinical sessions with the groups over the first Circuit District. Fifty centers for teaching have been designated for this course. The map with dates for each circuit indicate when the course will come to each county. With this, physicians can make plans for their absence or presence if desiring to participate in this course in the state for the coming two years.

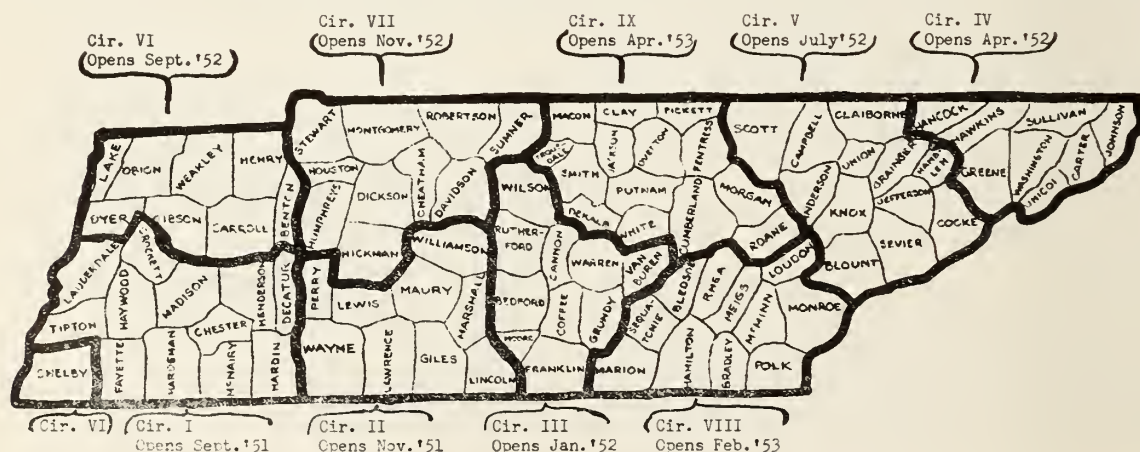


### Middle Tennessee Medical Association

The Middle Tennessee Medical Association held its semi-annual meeting in Columbia on November 15 with Dr. W. N. Cook presiding. The sessions were conducted at the Graymere Country Club and featured a number of lectures and a business session. Members of the Maury County Medical Society were hosts at dinner at the Twin Oaks Restaurant to those in attendance.

The following officers were elected: President-Elect, Dr. Thurman Shipley of Cookeville; Secretary-Treasurer, Dr. Fontaine Moore, Nashville; Dr. James T. Boykin of Murfreesboro was elevated to the Presidency; Dr. B. H. Woodard, Spring Hill, was elected to the Board of Trustees to fill out the unexpired term of Dr. E. B. Clark of Sparta, recently deceased.

The next meeting of the Association will be May 15, 1952, with the place to selected.



*At the request of the Executive Secretary the following article on the operation of the U.M.W.A. Welfare and Retirement Fund was submitted for publication by Warren F. Draper, M.D., Executive Medical Officer, in cooperation with Dr. John D. Winebrenner, Regional Medical Director. During the year 1950, 920 participating physicians in Tennessee received a total of \$135,129.46 for their services to beneficiaries of the program.*

**Statement Submitted for Publication in the  
Journal of the Tennessee State Medical  
Association**

The question is often asked, "What exactly do the United Mine Workers of America want from their Medical Program which is administered by the U. M. W. A. Welfare and Retirement Fund." The answer may be summarized as follows:

1. Adequate medical care and rehabilitation for a backlog of some 50,000 miners and their dependents which accumulated over many years because of indifference, neglect and inability to obtain good medical service.

2. Hospitalization in decent hospitals, proper standards of medical care within those hospitals, specialists' services when necessary, and a satisfactory quality of medical service at the home and physician's office as soon as a practical plan can be developed.

3. Physical and vocational rehabilitation under properly qualified direction to the extent that disabilities are amenable to rehabilitation measures.

4. Competent medical care, with accurate diagnoses and fair and unbiased determinations by physicians, of cases for which the Workmen's Compensation Laws are responsible.

5. The extension to mining communities of effective preventive medicine and public health services which it is the responsibility of official agencies to provide.

A question that logically follows is: "To what extent are these wants being filled?"

The Medical Program of the Fund has been available to its beneficiaries for 24 months as of November 1, 1951. The progress to that date may be summarized as follows:

1. Approximately 2,400,000 hospital days have been provided for Fund patients with a total expenditure for hospital care and physicians' services of more than \$58,000,000. More than 4,500 patients are being currently hospitalized each week.

2. Nearly 900 men with broken backs or otherwise helplessly crippled who had languished hopelessly in bed from one to twenty years have been removed to leading rehabilitation centers located throughout the country. Thousands of others, totally disabled but less seriously afflicted, have been sent to good hospitals where competent care can be administered.

3. As of June 30, 1951, 5,448 patients have been referred to the vocational rehabilitation agencies of which 2,220 have been accepted; of these, 555 are now employed.

4. A decided impetus has been given to the development of new facilities and techniques for the treatment of severely injured and disabled persons. In this connection, the creation of teams of medical specialists has become a standard practice.

5. The standard of medical practice in mining areas has been raised by bringing local physicians into contact with leading medical centers and specialists resulting in the better handling of cases.

6. Sites have been acquired and plans are being drawn for the establishment of modern hospitals of from 75 to 200 beds in communities in which facilities are woefully inadequate or totally lacking.

7. A vast amount of valuable data are being accumulated on the actual cost of the medical care that is rendered beneficiaries of the Fund on a voluntary fee-for-service basis.

8. A widespread interest and understanding of medical care problems has been created which with the experience gained will lead to improvements in the plan for medical care throughout the field.



### **Vanderbilt University School of Medicine**

At a meeting on November 2, a memorial review was presented of the life and works of Dr. Walter E. Garrey, who died on June 15. A son of a general practitioner, he himself was in general practice before entering upon an academic career. He taught physiology successively in Cooper Medical College of San Francisco, Washington University and Tulane University before becoming professor of physiology at Vanderbilt in 1925. He held this post until retirement in 1944. Dr. Garrey described the theory of circus movement of the auricle as the explanation of auricular fibrillation independent of other observers. This is only one example of his many researches. He was a member and officer of numerous learned societies. Though he was never identified with organized medicine locally, he was closely related to the scientific activities of the AMA and a close personal friend of some of its past officers. He was vice chairman of the Section on Pathology and Physiology of the AMA in 1935-36 and chairman in 1937. He gave many hours as a member of the Council on Physical Medicine and Rehabilitation of the AMA from



1927 to the end of his active life, having been chairman of the Council's Committee on Scientific Research.

**The Mid-South Allergy Forum** met on November 14 in Memphis. At a dinner meeting, a roundtable discussion was held on the Use of ACTH, Cortisone and Pyromen in Allergic States. The officers for the year are Dr. Sam Sanders, president and Dr. Bernard Zussman, Secretary.

**Murfreesboro V. A. Hospital.** The following lectures were given in November: Carbon Dioxide Therapy; and Nature of Aggression by Dr. Robert A. Matthews, Professor of Neuropsychiatry, Louisiana State University, New Orleans; and Problems in The Application of Electric Shock Therapy; Indications for the Various Shock Therapies; and The Psychiatric Problems of Prefrontal Lobotomy and Similar Operations, by Dr. Lothar B. Lakinowsky, Authority on Shock Therapy, New York City.



The Andrew Jackson Academy of General Practice held its first Clinical Day in cooperation with the Committee on Postgraduate Instruction of Vanderbilt University School of Medicine on November 16. The program consisted of twelve case presentations with discussion. The 27 registrants were guests of Vanderbilt University Hospital at lunch.

## PERSONAL NEWS

**Dr. C. E. Hopkins** of Syracuse, N. Y., is now associated with Dr. W. G. Crook in Jackson with practice limited to Pediatrics. The association will be known as The Children's Clinic.

**Dr. Luke Ellenburg** has joined the staff of the Greeneville Hospital and will continue his practice of pediatrics and general medicine from offices at the hospital.

**Dr. Rufus Morgan** will begin the practice of medicine at Bledsoe Memorial Hospital on January 1. Dr. Morgan is now interning at Erlanger Hospital.

**Dr. Addison B. Scoville, Jr.**, has been named Chairman of the Committee for Diabetes Detection of the Nashville Academy of Medicine.

**Dr. A. J. Ingram**, Memphis, addressed the Memphis Association of Medical Record Librarians recently on the subject of "Orthopedic Problems in Children".

**Dr. Spires Whitaker**, Chattanooga, addressed the Chattanooga Kiwanis Auxiliary at the Read House on "Research Into Diseases of the Heart".

**Dr. Joel J. White**, a retired rear admiral in the US Navy recently assumed the duties of medical director at St. Mary's Hospital in Knoxville.

**Dr. M. Lou Hefley**, Knoxville obstetrician, was scheduled to address the Sertoma Club last month.

**Dr. William K. Owen** of Pulaski attended the postgraduate course of Cook County School of Medicine in Chicago during November.

**Dr. C. E. Reeves**, Gainesboro, who has practiced medicine in the Upper Cumberland area for 62 years was awarded a "Fifty-Year Pin" at the dinner meeting of the Upper Cumberland Medical Association held recently in Jamestown. Dr. Reeves is the only living charter member of the Upper Cumberland Society.

**Dr. Raphael N. Paul** and **Dr. Robert G. Jordan, Jr.**, both of Memphis, were recently elected to fellowship in the American Academy of Pediatrics.

**Dr. John B. Youmans** of Nashville was re-elected to the post of treasurer of the Association of American Medical Colleges at its meeting at French Lick, Indiana on October 31.

## LOCATION WANTED

### Location Wanted

A young physician desires to enter general practice in Tennessee. He is 37, married, has two children. He graduated with honors from UT Medical School in 1945. Completed 13-month internship at John Gaston Hospital, then entered the Public Health Service and received a postgraduate

course and clinical training in diseases of the chest. Served as Director of Tuberculosis Control Division of Alabama Public Health Department from 1940 to 1950. He is presently employed as full-time physician with a State Public Health Department. He has a Tennessee license and would be available on thirty days' notice.

LW-5



### Physician Wanted

A resident physician in a town within fifteen miles of Memphis advises this office as follows:

"The City of — is in a very great need of additional doctors. Any help you can give us in solving this situation will be appreciated."

PW-2



### Surgical Residents Wanted

The Newell Hospital, Inc., Chattanooga 2, Tennessee, has immediate opening for surgical residents. The hospital is an accredited 50-bed general hospital with a large private clinic practice. The resident salary is \$400 per month with maintenance. The Newell Hospital has recently become approved for one-year residency training by the Council on Hospitals of the American Medical Association. Residents can obtain approval from the American Board of Surgery and the American College of Surgeons on a preceptorship basis. The address inquiry to Dr. Edward T. Newell, Jr., c/o The Newell Hospital. The present residency is open until July 1, 1952, at which time three additional appointments will be available.

PW-3



### General Practitioner Wanted

An established physician located within 50 miles of Nashville desires an associate. He has new and adequate clinical facilities.

PW-5



### EENT Specialist Wanted

This office has received a request that we assist the town of Princeton, Ky., locate an EENT physician. Princeton has 5,500 population, three factories, and a new industry coming in. It is located in a prosperous agricultural region. A new 35-bed hospital has been completed. There is no EENT specialist within 30 miles. Other adjacent towns include Cadiz, Eddyville, Kuttawa, Marion, Providence, and Dawson Springs—all within 25 miles of Princeton.

PW-6



Information on physicians and locations available from the Executive Secretary, Tennessee State Medical Association, 504 Doctors Building, Nashville.

*The following communication has been received by this office:*

"This letter is in behalf of our community's need for a good general medical doctor. We have no doctor at all in our area, which comprises a radius of 3 miles, and a growing population.

"We are situated 9 miles N.W. of Atlanta, Ga., in Cobb County, where Lockheed Aircraft is beginning the construction of the world's fastest jet bombers. There is a steadily growing need for a doctor.

"Our offer is office space, rent-free for one year, with other possible offers by our Civic Club. I will be glad to furnish more definite information to anyone interested."

PW-7

## BOOK REVIEW

**NEW AND NONOFFICIAL REMEDIES.** Issued by the Council of Pharmacy and Chemistry of the American Medical Association, Philadelphia, J. B. Lippincott Co. 1951.

The reviewer can only repeat essentially what was said a year ago concerning the 1950 volume. In this book are listed those drugs approved, as safe and effective, by the Council of Pharmacy and Chemistry of the AMA. It can only be hoped that physicians will use this as a guide in their use of new drugs.

R. H. K.

## ANNOUNCEMENTS

The Jackson Clinic, Jackson, Tennessee, announces the association of John Garth Riddler with practice limited to surgery.

**Dr. S. S. Whitaker**, formerly of Bristol, will open an office for the general practice of medicine in Bluff City in the near future.

**Dr. Kyle C. Copenhaver** has been named president of the Acuff Clinic, Church Avenue, Knoxville, succeeding **Dr. Herbert Acuff**, recently deceased. **Dr. Park Niceley**, the clinic urologist, was named vice president and **Dr. Harry Jenkins** has been named treasurer. **Dr. B. M. Overholt** continues as secretary.

**Dr. Doyle E. Currey** announces the association of **Dr. Alfred H. Evans** in the practice of medicine, surgery and obstetrics at the Doyle Currey Clinic in Chattanooga.



## OFFICERS OF THE TENNESSEE STATE MEDICAL ASSOCIATION

**President**—E. G. Kelly, M.D., 899 Madison Avenue, Memphis

**President-Elect**—Daugh W. Smith, M.D., 240 Doctors Building, Nashville

**Vice-President**—Julian K. Welch, Jr., M.D., Brownsville

**Vice-President**—C. B. Roberts, M.D., Sparta

**Vice-President**—Louis A. Killeffer, M.D., Harriman

**Secretary-Editor**—R. H. Kampmeier, M.D., Vanderbilt University Hospital, Nashville

**Executive-Secretary**—V. O. Foster, 504 Doctors Building, Nashville

### TRUSTEES

Daugh W. Smith, M.D., Chairman and Treasurer, 240 Doctors Building, Nashville (1952)

C. C. Trabue IV, M.D., 104 Twentieth Avenue, North, Nashville

A. M. Patterson, M.D., 546 McCallie Avenue, Chattanooga (1953)

Carrol C. Turner, M.D., 899 Madison Avenue, Memphis (1954)

Ralph H. Monger, M.D., 605 Medical Arts Building Knoxville

### SPEAKER OF THE HOUSE

C. C. Trabue IV, M.D., Nashville

### COUNCILORS

**First District**—L. E. Dyer, M.D., Greeneville (1952)

**Second District**—Kyle C. Copenhaver, M.D., Knoxville (1953)

**Third District**—W. J. Sheridan, M.D., Chattanooga (1952)

**Fourth District**—Myrtle Lee Smith, M.D., Livingston (1953)

**Fifth District**—Taylor Farrar, M.D., Shelbyville (1952)

**Sixth District**—D. C. Seward, M.D., Nashville (1953)

**Seventh District**—C. D. Walton, M.D., Mount Pleasant (1952)

**Eighth District**—Jere L. Crook, M.D., Jackson (1953)

**Ninth District**—J. Paul Baird, M.D., Dyersburg (1952)

**Tenth District**—Arthur R. Porter, Jr., M.D., Memphis (1953)

### DELEGATES TO THE AMERICAN MEDICAL ASSOCIATION

W. C. Chaney, M.D., Memphis (1953)

R. B. Wood, M.D., Knoxville (1952)

C. M. Hamilton, M.D., Nashville (1953)

### Alternates—

Harold B. Boyd, M.D., Memphis (1953)

Edward T. Newell, M.D., Chattanooga (1952)

R. H. Kampmeier, M.D., Nashville (1953)

## PRESIDENTS AND SECRETARIES OF COUNTY MEDICAL SOCIETIES

### Anderson and Campbell Counties

P. J. O'Brien, La Follette, Pres.

R. C. Pryse, La Follette, Sec'y.

### Bedford County

Alfred Farrar, Shelbyville, Pres.

Grace Moulder, Shelbyville, Sec'y.

### Blount County

Julian C. Lentz, Maryville, Pres.

W. N. Dawson, Maryville, Sec'y.

### Bradley County

S. J. Sullivan, Cleveland, Pres.

J. C. Lowe, Cleveland, Sec'y.

### Cooke County

Fred M. Valentine, Newport, Pres.

Glen C. Shults, Newport, Sec'y.

### Consolidated Medical Assembly of West Tennessee

J. W. Oursler, Humboldt, Pres.

S. M. Herron, Jackson, Sec'y.

### Cumberland County

Paul A. Ervin, Crossville, Pres.

A. M. Taylor, Crossville, Sec'y.

### Davidson County

R. H. Kampmeier, Vanderbilt University Hospital, Nashville, Pres.

Wm. G. Kennon, Jr., Hayes Street, Nashville, Sec'y.

Jack E. Ballentine, 647 Doctors Building, Nashville, Ex. Sec'y.

### Dickson County

W. A. Crosby, Dickson, Pres.

Mary Baxter Cook, Charlotte, Sec'y.

### Dyer, Lake, and Crockett Counties

P. A. Conyers, Dyersburg, Pres.

Lydia V. Watson, Dyersburg, Sec'y.

### Fentress County

Guy C. Pinckley, Jamestown, Pres.

J. Peery Sloan, Jamestown, Sec'y.

### Franklin County

E. W. Kirby-Smith, Sewanee, Pres.

George L. Smith, Winchester, Sec'y.

### Giles County

Roy W. Money, Pulaski, Pres.

W. K. Owen, Pulaski, Sec'y.

### Greene County

J. G. Hawkins, Greeneville, Pres.

Robert S. Cowles, Jr., Greeneville, Sec'y.

### Hamblen County

C. J. Duby, Morristown, Pres.

R. A. Purvis, Morristown, Sec'y.

### Hamilton County

James L. Hamilton, Pine Breeze

Sanatorium, Chattanooga, Pres.

Fred E. Marsh, 811 Medical Arts Building, Chattanooga, Pres.-Elect

R. G. Demos, Interstate Bldg., Chattanooga, Sec'y.

### Henry County

J. Ray Smith, Paris, Pres.

John E. Neumann, Paris, Sec'y.

### Humphreys County

J. C. Armstrong, Waverly, Pres.

H. C. Capps, Waverly, Sec'y.

### Jackson County

L. R. Dudley, Gainesboro, Pres.

W. T. Anderson, Gainesboro, Sec'y.

### Knox County

Joe L. Raulston, 4514 N. Broadway, Fountain City, Pres.

R. H. Monger, 605 Medical Arts Building, Knoxville, Sec'y.

### Lauderdale County

J. R. Lewis, Ripley, Pres.

James L. Dunavant, Ripley, Sec'y.

### Lawrence County

W. O. Crowder, Lawrenceburg, Pres.

V. L. Parrish, Loretto

### Lincoln County

J. V. McRady, Fayetteville, Pres.

R. E. McCown, Fayetteville, Sec'y.

### Macon County

Max E. Painter, Lafayette, Pres.

John R. Smith, Lafayette, Sec'y.

### Maury County

Edwin K. Provost, Columbia, Pres.

W. N. Cook, Columbia, Sec'y.

### McMinn County

E. B. Ranck, Athens, Pres.

J. A. Powell, Jr., Athens, Sec'y.

### Monroe County

Horace M. McGuire, Madisonville, Pres.

D. F. Heuer, Sweetwater, Sec'y.

### Montgomery County

M. L. Shelby, Clarksville, Pres.

J. W. Ross, Jr., Clarksville, Sec'y.

### Obion County

R. M. Darnall, Union City, Pres.

H. W. Calhoun, Union City, Sec'y.

### Overton County

A. B. Qualls, Livingston, Sec'y.

### Putnam County

J. T. Moore, Algood, Pres.

Thurman Shipley, Cookeville, Sec'y.

### Roane County

Wm. W. Pugh, Jr., Oak Ridge, Pres.

William P. Hardy, Oak Ridge, Sec'y.

### Robertson County

W. B. Dye, Springfield, Pres.

John S. Freeman, Springfield, Sec'y.

### Rutherford County

Eugene Odom, Murfreesboro, Pres.

S. C. Garrison, Jr., Murfreesboro, Sec'y.

### Scott County

D. T. Chambers, Norma, Pres.

Milford Thompson, Oneida, Sec'y.

### Sevier County

Ralph Shilling, Gatlinburg, Pres.

R. A. McCall, Sevierville, Sec'y.

### Shelby County

William D. Stinson, 899 Madison, Memphis, Pres.

Malcolm Aste, 265 South Bellevue, Memphis, Sec'y.

Battle Malone II, 188 South Bellevue, Memphis, Treas.

### Smith County

Sam Y. Garrett, Nashville, Pres.

L. R. Sloan, Carthage, Sec'y.

### Sullivan and Johnson Counties

H. W. Bachman, Bristol, Va., Pres.

K. R. Kiesau, Kingsport, Sec'y.

### Sumner County

Wm. M. Dedman, Gallatin, Pres.

William B. Farris, Gallatin, Sec'y.

### Tipton County

N. L. Hyatt, Covington, Pres.

H. Stirl Rule, Covington, Sec'y.

### Washington, Carter, and Unicoi Counties

E. L. Caudill, Jr., Elizabethton, Pres.

J. J. Range, Johnson City, Sec'y.

### Weakley County

M. R. Beyer, Dresden, Pres.

V. C. Fagan, Greenfield, Sec'y.

### White, Warren, and Van Buren Counties

Paul Goodman, McMinnville, Pres.

J. Franklin Fisher, Sparta, Sec'y.

### Williamson County

Walter Pyle, Franklin, Pres.

Adolphus Bray, Franklin, Sec'y.

### Wilson County

A. T. Hall, Lebanon, Pres.

R. C. Kash, Lebanon, Sec'y.

# 1951 MEMBERS OF TENNESSEE STATE MEDICAL ASSOCIATION

The list of members of the Tennessee State Medical Association is published in compliance with a provision of the Constitution and By-Laws. The data are accurate as of December 10, 1951. They are arranged in the following order:

## List of active members.

### Counties arranged alphabetically.

**ANDERSON COUNTY**  
*Clinton*  
A. W. Bishop  
Jonathan W. Cox  
J. S. Hall  
E. B. Smith  
*Lake City*  
J. M. Cox  
R. B. Scott  
*Norris*  
S. G. McNeely  
*Oak Ridge*  
(See Roane County)  
**BEDFORD COUNTY**  
*Shelbyville*  
W. H. Avery  
E. H. Barksdale  
James N. Burch  
W. L. Chambers  
A. L. Cooper  
Alfred Farrar  
Taylor Farrar  
Grace Moulder  
H. A. Morgan, Jr.  
T. R. Ray  
Carl Rogers  
Sara Womack  
*Wartrace*  
M. L. Connell  
**BENTON COUNTY**  
*Camden*  
J. Mansfield Bailey  
(Mbr. Davidson Co.)  
A. T. Hicks  
\*R. L. Horton  
**BLED SOE COUNTY**  
*Pikeville*  
Thomas G. Cranwell  
(Mbr. Hamilton Co.)  
**BLOUNT COUNTY**  
*Greenback*  
Joe E. Hall  
*Maryville*  
K. A. Bryant  
Geo. W. Burchfield  
Henry A. Callaway  
Lea Callaway  
M. A. Carnes  
W. C. Crowder  
Lynn F. Curtis  
W. N. Dawson  
R. H. Haralson  
H. L. Isbell  
Beulah Kittrell  
Samuel S. Lambeth  
Julian C. Lentz  
C. B. Lequire  
G. D. Lequire  
L. R. Lingeman  
F. S. Lovingood  
J. M. McCulloch  
J. F. Manning  
Lester C. Olin  
J. M. Ousley  
James N. Proffitt  
B. P. Ramsey  
Trent Vandergriff  
Lowell E. Vinsant  
**BRADLEY COUNTY**  
*Cleveland*  
D. N. Arnold  
\*Military service

W. B. Campbell  
E. R. Ferguson  
Wm. A. Garrett  
C. S. Heron  
J. C. Lowe  
Joseph McCoin  
C. T. Speck, Jr.  
W. C. Stanbery  
S. J. Sullivan  
Claud H. Taylor  
Madison S. Trehwitt  
**CAMPBELL COUNTY**  
*Royal Blue*  
Chas. Rogers  
*Jellico*  
C. E. Ausmus  
Geo. B. Brown  
Robert L. Brown  
Charles A. Prater  
Ned C. Watts  
*La Follette*  
J. J. Baird  
M. L. Davis  
A. O. Delozier  
P. T. Howard  
J. P. Lindsey  
P. J. O'Brien  
J. W. Presley  
R. C. Pryse  
James W. Riggs  
L. J. Seargeant  
**CANNON COUNTY**  
*Woodbury*  
William A. Bryant  
(Mbr. Rutherford Co.)  
Russell E. Meyers  
(Mbr. Rutherford Co.)  
**CARROLL COUNTY**  
*Bruceston*  
R. T. Kecton  
L. E. Trevathan  
*Huntingdon*  
R. A. Douglas  
R. B. Wilson  
*McKenzie*  
E. E. Edwards  
J. T. Holmes  
*Trezevant*  
F. C. Carnell  
**CARTER COUNTY**  
*Elizabethton*  
R. J. Allen  
Charles B. Baughman  
J. W. Brown, Jr.  
E. L. Caudill  
E. L. Caudill, Jr.  
W. G. Frost  
John A. Knapp  
E. T. Pearson  
J. S. Shaver  
D. M. Sholes, Jr.  
Homer P. Williams  
J. M. Willett  
**CHIESTER COUNTY**  
*Henderson*  
W. O. Baird  
Ernest P. Guy  
L. C. Smith  
Hunter M. Steadman  
J. B. Stephens

**CLAIBORNE COUNTY**  
*New Tazewell*  
H. C. Evans  
(Mbr. Knox Co.)  
George L. Rea  
(Mbr. Knox Co.)  
**CLAY COUNTY**  
*Celina*  
Champ E. Clark  
**COCKE COUNTY**  
*Newport*  
W. E. McGaha  
Drew A. Mims  
L. S. Nease  
W. C. Ruble, Jr.  
Glen C. Shults  
Fred M. Valentine  
**COFFEE COUNTY**  
*Manchester*  
Clarence Farrar  
(Mbr. Rutherford Co.)  
Howard A. Farrar  
J. H. Farrar  
(Mbr. Rutherford Co.)  
*Tullahoma*  
J. M. King  
(Mbr. Bedford Co.)  
Bryant S. Swindall  
(Mbr. Bedford Co.)  
**CROCKETT COUNTY**  
*Alamo*  
E. O. Prather, Jr.  
*Bells*  
E. Farrow  
F. P. Hess  
S. E. McDonald  
**CUMBERLAND COUNTY**  
*Crossville*  
John Q. Adams  
Paul A. Erwin, Jr.  
James L. Gardner  
H. F. Lawson  
Robert M. Metcalfe  
Alfred Taylor  
*Pleasant Hill*  
Margaret Stewart  
May C. Wharton  
**DAVIDSON COUNTY**  
*Donelson*  
J. L. Ames  
(Mbr. Wilson Co.)  
E. E. Anderson  
Luther A. Beasley  
J. M. Curry  
(Mbr. Consolidated Soc.)  
C. N. Gessler  
H. P. Hyder  
*Goodlettsville*  
S. J. Fentress  
*Madison*  
Frederick B. Cothren  
Joe E. Sutherland  
Harry Witzum  
*Madison College*  
Julian C. Gant

David F. Johnson  
Gilbert H. Johnson  
Cyrus E. Kendall  
James D. Schuler  
*Nashville*  
\*Walter M. Adair  
Crawford Adams  
J. W. Alford, Jr.  
W. L. Alsobrook  
Edwin B. Anderson  
J. Sumpter Anderson  
J. J. Ashby  
G. F. Aycock  
Sidney W. Ballard  
Hugh Barr  
David S. Bayer  
Eric Bell, Jr.  
Lynch Bennett  
Edmund W. Benz  
W. C. Bilbro  
Otto Billig  
F. T. Billings, Jr.  
James B. Boddie, Jr.  
Anna M. Bowie  
John M. Boylin  
H. B. Brackin  
Cloyce F. Bradley  
G. Hearn Bradley  
L. F. Bridges  
M. F. Brown  
(Mbr. Lincoln Co.)  
Barney Brooks  
Clinton E. Brush  
J. L. Bryan  
J. Thomas Bryan  
O. N. Bryan  
John C. Burch  
Joseph G. Burd  
R. N. Buchanan, Jr.  
Roger B. Burrus  
B. F. Byrd  
B. F. Byrd, Jr.  
Will Camp  
Richard O. Cannon  
George K. Carpenter  
Oscar W. Carter  
Randolph Cate  
W. R. Cate  
John S. Cayce  
Lee F. Cayce  
Amos Christie  
Cully A. Cobb, Jr.  
W. E. Cooper  
W. J. Core  
Orrie A. Couch, Jr.  
Sam C. Cowan  
Sam C. Cowan, Jr.  
Frederic E. Cowden  
John K. Crawford  
R. R. Crowe  
Rollin A. Daniel, Jr.  
Philip V. Daugherty  
Murray B. Davis  
I. W. Davis  
K. R. Deibert  
Chas. C. Denner  
Wm. A. Demonbreun  
Walter L. Dively  
W. C. Dixon  
Earl D. Dorris  
H. L. Douglass  
Beverly Douglas  
Bate Dozier  
Price Duff  
George Duncan  
Herbert Duncan  
James W. Ellis  
L. W. Edwards  
Phillip C. Elliott  
Harry M. Estes  
Duncan Eve, Jr.  
Don L. Eyler  
W. F. Fessey  
R. O. Fessey  
Robert M. Finks  
Garth E. Fort  
S. Benjamin Fowler  
Richard France  
Herbert C. Francis  
John W. Frazier, Jr.  
Thomas Fern Frist

James L. Fuqua  
Joseph F. Gallagher  
Robert K. Galloway  
Chas. K. Gardner  
J. C. Gardner  
Sam Y. Garrett  
(Mbr. Smith Co.)  
R. S. Gass  
(Mbr. Williamson Co.)  
Hamilton V. Gayden  
Horace C. Gayden  
John R. Glover, Sr.  
James E. Goldsberry  
E. W. Goodpasture  
Robt. A. Goodwin  
David K. Gotsdalk  
Geo. T. Graves, Jr.  
R. W. Grizzard  
Thomas Grizzard  
Laurence A. Grossman  
Milton Grossman  
Roy G. Hammonds  
David W. Hailey  
Chas. E. Haines  
Thos. B. Haltom  
C. M. Hamilton  
Geo. H. Harding  
E. C. Harrison  
(Mbr. Williamson Co.)  
A. B. Hatwell  
(Mbr. Knox Co.)  
Fred R. Haselton  
O. S. Hawk  
James T. Hayes  
J. H. Head, D.D.S.  
J. L. Herrington  
John G. Herzfeld  
J. B. Hibbitts, Jr.  
William Higginson  
I. R. Hillard  
R. H. Hirsch  
I. Harvill Hite  
A. N. Hollabaugh, Jr.  
Chas. F. Hollabaugh  
Wm. A. Horan  
Granville W. Hudson  
Vernon Hutton, Jr.  
M. D. Ingram  
(Mbr. Rutherford Co.)  
J. McK. Ivie  
Daniel J. Johns, Jr.  
Hollis F. Johnson  
T. M. Jordan  
R. H. Kampmeier  
A. E. Keller  
J. Allen Kennedy  
Wm. G. Kennon, Jr.  
Howard King  
Carl T. Kirchmaier  
A. Kirtley, Jr.  
Ross C. Kory  
\*Roland D. Lamb  
R. K. Landis  
Leon M. Lanier  
Ralph M. Larsen  
Horace T. Lavelly, Jr.  
W. P. Law  
G. Allen Lawrence  
John M. Lee  
John J. Lentz  
Elias A. Lessem  
Jas. D. Lester  
Milton S. Lewis  
Richard C. Light  
Rudolph Light  
A. B. Lipscomb  
J. P. Lowe  
S. L. Lowenstein  
Frank H. Luten  
Philip L. Lyle  
Robt. H. Magruder  
Guy Milford Maness  
J. Owsley Manier  
W. R. Manlove  
Edw. H. Martin, D.D.S.

Travis H. Martin  
W. D. Martin  
Jas. Andrew Mayer  
Ben R. Mayes  
G. S. McClellan  
C. C. McClure  
C. C. McClure, Jr.  
Robt. L. McCracken  
C. S. McMurray  
Barton McSwain  
Wm. F. Meacham  
Alfred K. Meyer  
Cleo M. Miller  
R. H. Miller  
(Mbr. Shelby Co.)  
F. B. Moore  
John F. Moore  
Hugh J. Morgan  
N. B. Morris  
P. G. Morrissey, Jr.  
M. K. Moulder  
D. L. Mumpower  
Oscar G. Nelson  
Oscar F. Noel  
O. A. Oliver, D.D.S.  
Wm. F. Orr, Jr.  
James C. Overall  
Fred W. T. Overton  
Roy Wm. Parker  
R. C. Patterson, Jr.  
H. E. Paty  
Edna S. Pennington  
J. C. Peterson  
M. A. Petrone  
Bruce P. Pool  
J. J. Post  
Samuel B. Prevo  
Paul E. Purks  
Chas. C. Randall  
James Scay Read  
E. M. Regen  
Sidney C. Reichman  
John R. Rice  
H. P. Rieger  
Elkin L. Rippey  
S. S. Riven  
Ben H. Robbins  
Miller Robinson  
Herman Rosenblum  
Louis Rosenfeld  
Sam T. Ross  
B. T. Rucks  
Dan Sanders, Jr.  
J. H. Sayers  
A. B. Scoville, Jr.  
George F. Seeman, D.D.S.  
D. C. Seward  
John L. Shapiro  
Harry G. Shelley  
N. S. Shofner  
H. H. Shoulders  
H. S. Shoulders  
Harrison J. Shull  
Annie T. Sikes  
T. E. Simpkins  
Daugh W. Smith  
Henry C. Smith  
Frank W. Stevens  
Hugh L. C. Stevens  
Joe M. Stravhorn  
W. D. Strayhorn  
Robt. E. Sullivan  
Wm. D. Sumpter, Jr.  
Arthur J. Sutherland  
Edw. L. Tarpley  
S. R. Teachout  
Pauline Tenzel  
Robert T. Terry  
A. B. Thach, Jr.  
C. S. Thomas  
J. N. Thomasson  
W. Oakes Tirrill, Jr.  
C. C. Trabue, IV  
C. B. Tucker  
Harlin G. Tucker  
John M. Tudor  
J. J. Vaughan, D.D.S.  
Wm. O. Vaughan

Towns in each county arranged alphabetically and the members in each town arranged alphabetically.

List of members residing outside the state arranged alphabetically.

## List of veteran members.

### List of members who have died in the year 1951.



O. F. Von Wersowetz  
Ethel Walker  
R. D. Ward  
Thos. F. Warder  
Paul L. Warner  
R. J. Warner  
Thomas S. Weaver  
B. H. Webster  
Albert Weinstein  
Bernard Weinstein  
Joe T. Whitfield  
W. W. Wilkerson, Jr.  
Erle E. Wilkinson  
Claiborne Williams  
Edwin L. Williams  
W. C. Williams  
F. G. Witherspoon  
Jack Witherspoon  
Frank C. Womack  
W. T. Woodward  
(Mbr. Washington, Carter, Unicoi)  
C. C. Woodcock  
M. C. Woodfin  
F. Volney Woodring  
John L. Wyatt  
R. E. Wyatt  
John B. Youmans  
Kate Savage Zerfoss  
Thos. B. Zerfoss

*Old Hickory*

J. D. Dailey  
E. P. Johnson  
R. P. Miller  
E. B. Rhea  
W. W. Wilson  
(Mbr. Shelby Co.)

**DECATUR COUNTY***Decaturville*

H. L. Conger

**DEKALB COUNTY***Alexandria*

Odell Mason  
(Mbr. Smith Co.)

**DICKSON COUNTY***Charlotte*

Mary Baxter Cook

*Dickson*

R. P. Beasley  
W. A. Bell, Jr.  
W. A. Crosby  
J. T. Jackson  
Lawrence C. Jackson  
W. M. Jackson  
W. J. Sugg

**DYER COUNTY***Dyersburg*

W. E. Anderson  
J. Paul Baird  
Thos. V. Banks  
John E. Carne  
Percy A. Conyers  
Robert T. Kerr  
O. B. Landrum  
I. A. Ledbetter  
J. B. Moody  
Joe M. Moody  
I. C. Moore  
I. H. Nunn  
J. G. Price  
R. David Taylor  
P. C. Tipton  
Lydia V. Watson

*Newbern*

Wm. L. Phillips  
Patrick Widdis

**FAYETTE COUNTY***Oakland*

I. D. McAuley

*Rossville*

F. K. West

*Somerville*

H. L. Armstrong  
John L. Armstrong  
John W. Morris  
Wiggins W. Wilder

**FENTRESS COUNTY***Jamestown*

Guy C. Pinckley  
J. Peery Sloan

**FRANKLIN COUNTY***Cowan*

James Van Blaricum

*Decherd*

P. J. Flippin

*Sewanee*

Ruth Cameron  
R. R. Gatling  
Charles B. Keppler  
E. W. Kirby-Smith  
H. T. Kirby-Smith

*Winchester*

George A. Adams  
Reynolds Fite  
George L. Smith

**GIBSON COUNTY***Dyer*

F. Douglass  
John J. Jackson

*Humboldt*

H. G. Barker  
Chas. W. Davis  
A. H. Fick  
J. W. Oursler  
Jas. D. Rozzell  
George E. Spangler

*Medina*

Robt. Morris

*Milan*

H. P. Clemmer  
James O. Fields  
R. T. Hughes  
P. D. Jones  
F. L. Keil

*Rutherford*

W. F. Bell

*Trenton*

Edw. C. Barker  
J. O. Barker  
James W. Hall  
M. D. Ingram  
W. C. McRee

**GILFS COUNTY***Bethel*

L. A. Edmondson

*Lynnville*

W. F. Copeland

*Pulaski*

I. F. Booth  
F. B. Hulme  
W. J. Johnson  
Roy W. Money  
W. K. Owen  
I. U. Speer

**GRAINGER COUNTY***Rutledge*

L. C. Bryan  
(Mbr. Knox Co.)

*Washburn*

Robt. J. Phlegar  
(Mbr. Knox Co.)

**GREENE COUNTY***Greeneville*

V. R. Bottomley  
James F. Campbell  
L. E. Coolidge  
R. S. Cowles  
Robt. S. Cowles, Jr.  
N. H. Crews  
L. E. Dyer  
G. C. Ekvall  
Luke L. Ellenburg  
C. P. Fox, Jr.  
Haskell W. Fox  
R. B. Gibson  
J. G. Hawkins  
Hal Henard

N. P. Horner  
C. B. Laughlin  
W. Lewis McGuffin

*Mosheim*

Dale Brown

**HAMBLETON COUNTY***Morristown*

J. K. Cooper  
J. W. Davis  
C. J. Duby  
C. F. George  
Y. Alvin Jackson  
Harold B. Marhle  
L. W. Nabers  
F. F. Painter  
John L. Pearce  
R. A. Purvis  
Powell Trusler  
D. J. Zimmermann

**HAMILTON COUNTY***Chattanooga*

Chester Adams  
John W. Adams  
Justin O. Adams  
C. H. Alper  
F. R. Anderson  
J. J. Armstrong  
I. L. Arnold  
H. R. Ausherman  
Merton Baker  
C. H. Barnwell  
S. H. Barrett  
Wesley A. Barton  
J. L. Bibb  
M. W. Binger  
Robert J. Boehm  
Walter E. Boehm  
C. R. Bradford  
J. W. Bradley  
Frank S. Brannen  
A. I. Branton  
J. C. Brooks, Jr.  
Sumner W. Brown  
James Y. Bryson  
Arch Bullard  
E. F. Buchner, Jr.  
W. R. Buttram  
W. R. Buttram, Jr.  
John R. Cain  
Earl R. Campbell  
Douglas  
Chamberlain  
Cleo Chastain  
O. H. Clements  
George E. Cox  
Tolbert C. Crowell  
Doyle E. Currey  
J. Tom Currey  
O. M. Derryberry  
E. M. DeLay  
Robt. G. Demos  
James F. Dietrich  
Paul H. Dietrich  
Richard B. Donaldson  
Albert S. Easley  
A. F. Ebert  
Robt. E. Evsen  
J. R. Fancher  
E. Marlin Fitts  
Richard Van Fletcher  
A. C. Ford  
Guy M. Francis  
J. E. Frazier  
J. Marsh Freere  
O. C. Gass  
G. C. Gibson  
Robt. H. Giles, Jr.  
Dean W. Gollev  
Paul M. Gollev  
K. N. Gould  
F. Russell Hackney  
Wm. R. Green  
Alton G. Hair  
R. J. Hall  
J. L. Hamilton  
Foster Hampton, Jr.  
H. H. Hampton  
Frank F. Harris  
Carl A. Hartung  
John B. Haskins  
J. B. Havron  
Robt. S. Hellman  
H. B. Henning  
Charles R. Henry  
George K. Henshall  
Homer D. Hickey  
John M. Higgason

J. M. Higginbotham  
Wm. W. Hoback  
J. F. Hobbs  
John W. Hocker  
J. McC. Hogshead  
Pope B. Holliday, Jr.

C. M. Hooper  
Rudolph A. Hoppe  
Don R. Hornsby  
W. P. Hutcherson  
D. Isbell  
Harry Jones  
Edward G. Johnson  
Franklin Johnson  
Joseph Johnson, Jr.  
J. Paul Johnson  
D. B. Karr  
Walter P. Keith  
Joe Killebrew  
John J. Killeffer  
John E. Kimball, Jr.  
Clyde R. Kirk  
Gene H. Kistler  
H. P. Larimore  
Chester L. Lassiter  
Hiram A. Laws, Jr.  
Stewart Lawwill  
Phillip H. Livingston

H. D. Long  
S. H. Long  
\*Hugh B. Magill, Jr.

F. J. Manson  
S. S. Marchbanks  
Fred E. Marsh  
M. A. Meacham  
William MacGuire  
H. J. McAlister  
Cooper H. McCall  
Augustus McGraw  
J. B. McGee  
J. D. L. McPheters

George A. Mitchell  
Fav B. Murph  
Oscar B. Murray  
Cecil E. Newell  
F. Dunbar Newell  
F. T. Newell, Jr.  
Charles H. Paine  
Julius G. Parker  
A. M. Patterson  
R. L. Patterson  
F. O. Pearson  
J. B. Phillips  
W. Houston Price  
W. D. L. Record  
F. E. Reisman, Jr.  
Herman Renner  
Wm. H. Riheldaffer  
Gilbert M. Roberts  
G. Madison Roberts  
Robert C. Robertson  
H. A. Schwartz  
Clarence Shaw  
George Shelton  
R. E. Shelton  
W. J. Sheridan  
John N. Shipp  
V. F. Shull  
Wm. G. Shull  
Leopold Shumacker  
Moore J. Smith, Jr.  
Stewart P. Smith  
Richard F. Stappenbeck

Harold J. Smith  
John B. Steele  
Willard Steele  
Willard H. Steele, Jr.  
William A. Stem  
Wm. G. Stephenson  
J. E. Strickland, Jr.  
Wesley Stoneburner  
Charles L. Suggs, Jr.  
J. B. Swafford  
Jack Tepper  
Chas. Roberts  
Thomas

Robt. C. Thompson  
A. S. Ulin  
Louis Ulin  
Gus J. Vlas  
Arthur J. Von Wersowetz  
Wm. E. Van Order  
L. Spires Whitaker  
G. Victor Williams  
S. H. Wood  
James C. Wright  
Roy O. Young

Daisy  
C. A. Clements

**Ooltewah**

Eugene M. Ryan

*Soddy*

E. L. Jenkins

**HANCOCK COUNTY***Sneedville*

M. R. Rogers  
(Mbr. Hamblen Co.)

**HARDMAN COUNTY***Bolivar*

E. L. Baker  
D. L. Brint  
W. E. Lawrence  
B. F. McNulty  
J. Knox Tate

*Grand Junction*

L. D. Pope

*Whiteville*

P. M. Bishop  
Aubrey Richards

**HARDIN COUNTY***Savannah*

J. W. Carroll  
J. V. Hughes, Jr.  
Otis Whitlow  
O. H. Williams

**HAWKINS COUNTY***Bulls Gap*

J. E. Kite, Jr.  
(Mbr. Greene Co.)

*Church Hill*

Warren L. Clark

*Rogersville*

Roy A. Doty  
(Mbr. Greene Co.)

**HAYWOOD COUNTY***Brownsville*

John M. Chambers  
F. C. Chapman  
H. L. Gilliland  
W. D. Poston  
Glenn T. Scott  
David E. Stewart  
John Thornton, Jr.  
J. K. Welch, Jr.

*Stanton*

J. A. Jones

**HENDERSON COUNTY***Lexington*

R. M. Conger  
C. J. Huntsman  
W. C. Ramer

**HENRY COUNTY***Paris*

Arthur Dunlap  
R. Graham Fish  
I. H. Jones  
Geo. R. McSwain  
J. H. McSwain  
John E. Neumann  
W. G. Rhea  
J. Roy Smith  
Henriette Veltman  
C. D. Wilder

**HICKMAN COUNTY***Centerville*

Ogle Jones  
(Mbr. Davidson Co.)

**HOUSTON COUNTY***Erin*

Iroy Walker  
(Mbr. Montgomery Co.)

*Daisy***HUMPHREYS COUNTY***Johnsonville*

Henry M. Cox  
(Mbr. Consolidated Co.)

*Waverly*

H. C. Capps  
J. C. Armstrong

**JACKSON COUNTY***Gainesboro*

L. R. Anderson  
W. T. Anderson  
L. R. Dudley  
R. C. Gaw

**JEFFERSON COUNTY***Dandridge*

Sam D. Sullenberger

*Jefferson City*

T. A. Caldwell  
(Mbr. Knox Co.)  
Sam C. Fain  
(Mbr. Hamblen Co.)  
Frank Milligan  
(Mbr. Hamblen Co.)  
Estle P. Muncy  
(Mbr. Hamblen Co.)

*Strawberry Plains*

Robert Creech  
R. M. Webster  
(Mbr. Knox Co.)

*White Pine*

Dale Allen  
(Mbr. Hamblen Co.)  
E. R. Baker  
(Mbr. Hamblen Co.)

**JOHNSON COUNTY***Mountain City*

Paul J. Bundy  
R. O. Glenn

**KNOX COUNTY***Byington*

A. R. Garrison

*Concord*

Malcolm Cobb  
R. H. Duncan, Jr.  
B. D. Goodge

*Corryton*

M. L. Jenkins  
A. D. Simmons

*Fountain City*

James P. Harmon  
A. L. Jenkins  
F. H. Payne  
Joe E. Raulston  
J. Gordon Smith

*Knoxville*

Eugene Abercrombie  
Alton Absher  
J. E. Acker, Jr.  
Robert L. Akin  
Eben Alexander  
Chas. Armstrong  
John W. Aver  
Troy P. Bagwell  
B. G. Baker  
Robert Baker  
O. E. Ballou  
Spencer Y. Bell  
Chas. W. Black  
H. O. Boukard  
M. C. Bowman  
Robert Brashear  
Horace E. Brown  
\*Richard Butler  
\*Military service  
John Burkhardt  
P. H. Cardwell  
C. S. Carlson  
L. G. Caylor  
Jack Chesney  
L. Warren Chesney  
H. S. Christian  
H. E. Christenberry  
H. E. Christenberry, Jr.

\*Military service

K. W. Christenberry  
W. F. Christenberry  
C. L. Chumley  
Edward S. Clayton  
Sam Cooper  
K. C. Copenhaver  
William R. Cross  
Miles Crowder  
J. P. Cullum  
H. K. Cunningham  
Daniel Davis  
Martin Davis  
R. V. Dupue  
W. A. DeSautelle  
W. T. DeSautelle  
A. W. Diddle  
Sheldon Domma  
Earl Donathan  
W. F. Dorsey  
John Daugherty  
Fred F. Dupree  
Chas. R. Earnest, Jr.  
J. Gilbert Eblen  
E. M. Edington  
Edward W. Ellis  
J. B. Ely  
W. H. Enneis  
Frank Faulkner  
George H. Finer  
W. D. Gibson  
Edgar L. Grubb  
Glenn Grubb  
E. A. Guynes  
J. R. Hamilton  
B. I. Harrison  
Eugene Haun  
Louis A. Haun  
M. L. Helley  
George G. Henson  
Howard Hicks  
Jesse C. Hill  
John R. Hill  
Oliver W. Hill, Jr.  
Victor Hill  
Stuart Hodges  
David F. Hoey  
Leon C. Hoskins  
George Turner  
Howard, Jr.  
Moses Howard  
A. G. Huffstедler  
Fred E. Huffstедler  
Perry Huggin  
E. C. Idol  
Geo. Inge  
C. E. Irwin  
W. J. Irwin  
Donathan Ivy  
Harry H. Jenkins  
C. B. Jones  
John O. Kennedy  
John F. Kesterson  
R. C. Kimbrough, Jr.  
H. L. Kitts  
Lamar Knight  
A. Hobart Lancaster  
Robert P. Layman  
J. Marshall Lea  
Robert S. Leach  
John H. Leshner  
W. J. Lehman  
Forest S. LeTellier  
Felix Line  
Geo. S. Mahan  
Joseph Marshall  
C. P. McCammon  
Margaret Maynard  
H. H. McCampbell  
Roy McCrary  
A. R. McCullough  
M. D. McCullough  
Roy L. McDonald  
P. A. McGinnis  
Richard McIlwaine  
R. L. McReynolds  
Alfred Miller  
Edwin E. Miller  
Fov B. Mitchell  
John F. Mohr  
Ralph H. Monger  
J. L. Montgomery  
John D. Moore  
Owen Moore  
A. K. Morris  
Joel C. Morris  
J. F. Morrow  
A. J. Muller  
William S. Muse  
J. B. Naive  
J. B. Neil  
William A. Nelson  
H. L. Neuenschwander  
Robert Newman  
Eugene P. Nicely

Hazel Nichols  
Ralph Nichols  
Homer Ogie  
B. M. Overholt  
Nicholas Pappas  
Robert F. Patterson  
Robert F. Patterson, Jr.  
Herschel Penn  
Jarrell Penn  
H. Dewey Peters  
B. F. Peterson  
S. Joe Platt  
Herbert L. Pope  
W. W. Potter  
R. M. Powell  
William F. Powell  
Bruce Powers  
John A. Range  
\*Robert S. Reaves, Jr.  
W. D. Richards  
N. G. Riggins  
James Roberts  
M. S. Roberts  
Frank Rogers  
Kenneth Rule  
Olin W. Rogers  
J. H. Salford  
Wm. A. Shelton  
A. B. Shipley  
E. Chas. Sienknecht  
Frank J. Slemmons  
Chas. C. Smeltzer  
Joe T. Smith  
Philip Smith  
Vernon I. Smith  
W. E. Smith  
John R. Smoot  
J. M. Stockman  
G. W. Stone  
Thos. Stevens  
Wm. K. Swann, Jr.  
R. G. Tappan  
George W. Tharp  
D. R. Thomas  
Philip Thomas  
Wm. M. Tipton  
Geo. M. Trotter  
M. Frank Turney  
R. G. Waterhouse  
David Waterman  
Alvin J. Weber, Jr.  
Fred West  
Joel J. White  
(Mbr. Davidson Co.)  
W. J. Whichurst  
G. A. Williamson, Jr.  
Leon J. Willien  
J. D. Winbrenner  
R. B. Wood  
R. M. Young  
E. Russell Zemp  
Charles R. Zirkle  
George Zirkle

*Mascot*  
H. J. Bolin  
Joseph K. Seale, Jr.

*Powell Station*  
L. F. Cruze

LAKE COUNTY  
*Ridgely*  
W. B. Acree

*Tiptonville*  
J. R. Holefield  
W. T. Rainey  
E. B. Smythe

LAUDERDALE COUNTY  
*Halls*  
James K. Hinton, Jr.  
(Mbr. Dyer, Lake & Crockett)  
J. G. Olds  
(Mbr. Dyer, Lake & Crockett)  
*Ripley*  
J. L. Dunavant  
J. R. Lewis  
Olyn Fred Moore, Jr.  
Laudrum S. Tucker  
C. R. Webb  
Claud M. Williams

LAWRENCE COUNTY  
*Lawrenceburg*  
John M. Byrne

V. H. Crowder  
J. W. Danley  
W. O. Crowder  
Leo C. Harris, Jr.  
Leo C. Harris, Sr.  
J. W. Millen  
T. J. Stockard

*Loretto*  
V. L. Parrish  
M. H. Weathers, Jr.

LEWIS COUNTY  
*Hollenwald*  
William E. Boyce  
(Mbr. Maury Co.)  
Jerome Powers  
(Mbr. Consolidated Co.)

LINCOLN COUNTY  
*Ardmore*  
D. I. Hardin

*Elora*  
A. L. Griffith

*Fayetteville*  
Ben H. Marshall  
R. E. McGown  
J. V. McRady  
T. A. Patrick

*Petersburg*  
W. S. Joplin

LOUDON COUNTY  
*Lenoir City*  
Harold D. Freedman  
(Mbr. Knox Co.)  
Hughes Johnson  
(Mbr. Knox Co.)  
J. A. Iceper  
(Mbr. Knox Co.)  
R. V. Taylor  
(Mbr. Knox Co.)

*Loudon*  
Corrie Blair  
(Mbr. Knox Co.)  
Arthur P. Harrison  
(Mbr. Knox Co.)  
W. B. Harrison  
(Mbr. Knox Co.)  
Wm. T. McPeake  
(Mbr. Knox Co.)  
J. R. Watkins  
(Mbr. Knox Co.)

MACON COUNTY  
*Lafayette*  
Max E. Painter  
John R. Smith

MADISON COUNTY  
*Bemis*  
Kelly Smythe

*Jackson*  
J. G. Anderson  
Thomas K. Ballard  
G. H. Berryhill  
Wm. H. Brooks  
Cecil Brown  
Swan Butrus  
Hughes Chandler  
Fate B. Collins  
Jere L. Crook  
Wm. G. Crook  
G. B. Dodson  
J. E. Douglass  
W. T. Fitts  
Robt. L. Gilliam  
Henry H. Herron  
S. M. Herron  
G. B. Hubbard  
Helen Johnston  
Leland M. Johnston  
H. L. Jones  
G. Frank Jones  
Frank A. Moore  
H. N. Moore  
Wm. C. Moore  
Lamb B. Myhr  
John B. Nuckolls  
W. F. Outlan  
J. C. Pearce  
J. E. Powers

Norris Shelton  
Charles Stauffer  
J. R. Thompson, Jr.  
Barbara Trux  
S. Allen Trux  
Wm. F. Wagner  
Chas. F. Webb  
Chas. H. Webb  
R. B. White  
Geo. B. Wyatt  
Paul E. Wylie

MARSHALL COUNTY  
*Lewisburg*  
Kenneth Brown  
(Mbr. Bedford Co.)  
J. T. Gordon  
(Mbr. Bedford Co.)  
William S. Poarch  
(Mbr. Bedford Co.)

MAURY COUNTY  
*Columbia*  
D. B. Andrews  
Wendell C. Bennett  
H. C. Busby  
Mildred Casey  
William N. Cook  
Harry C. Helm  
(Mbr. Roane Co.)  
Rohin Lyles  
Clay R. Miller  
James B. Miller  
Edwin K. Provost  
Warren Rucker  
Leon S. Ward  
Eleanor Williamson  
Watt Yeiser

*Mt. Pleasant*  
G. C. English  
J. H. Jones  
C. D. Walton

*Spring Hill*  
B. H. Woodard

McMINN COUNTY  
*Athens*  
W. R. Arrants  
R. W. Epperson  
G. O. Force  
W. Edwin Force  
J. A. Powell, Jr.  
S. S. Hindman  
Edward B. Ranck  
Helen M. Richards  
L. H. Shields

*Englewood*  
D. P. Brendle

*Etowah*  
S. Boyd McClary, Jr.  
John C. Sharp  
H. P. Whittle

McNARY COUNTY  
*Selmer*  
T. N. Humphrey  
W. A. Phillips  
E. M. Smith

MEIGS COUNTY  
*Decatur*  
W. J. Abel

MONROE COUNTY  
*Madisonville*  
R. C. Kimbrough  
Horace M. McGuire

*Sweetwater*  
J. H. Barnes  
D. F. Heuer, Jr.  
T. A. Lowry  
J. E. Young

MONTEGOMERY COUNTY  
*Clarksville*  
Edward R. Atkinson  
Carlos B. Brewer  
E. P. Cutter  
\*Sam M. Doane, Jr.  
H. H. Edmonson

V. H. Griffin  
J. H. Ledbetter  
J. H. Ledbetter, Jr.  
Wm. G. Lyle  
Jack Ross  
Bruce Runyon  
A. F. Russell  
M. I. Shelby  
Paul F. Wilson  
R. M. Workman

MOORE COUNTY  
*Lynchburg*  
F. Harlan Booher  
(Mbr. Lincoln Co.)

MORGAN COUNTY  
*Oakdale*  
J. H. Carr  
(Mbr. Roane Co.)

OBION COUNTY  
*Kenton*  
J. M. Capps  
Vlden H. Gray  
(Mbr. Consolidated Cos.)

*Obion*  
Leon I. Runyon  
(Mbr. Dyer, Lake, and Crockett Cos.)  
James C. Walker  
(Mbr. Obion Co.)

*Troy*  
F. A. Boswell  
(Mbr. Dyer, Lake, and Crockett Cos.)

*Union City*  
M. A. Blanton, Jr.  
M. A. Blanton, Sr.  
Stevens Byars  
H. W. Calhoun  
Robb M. Darnall  
B. O. Garner  
R. G. Latimer, Jr.  
R. G. Latimer, Sr.

OVERTON COUNTY  
*Livingston*  
W. M. Brown  
J. D. Capps  
Joe Capps  
H. B. Nevans  
A. B. Qualls  
F. L. Sidwell  
Myrtle L. Smith

PERRY COUNTY  
*Linden*  
O. A. Kirk

*Lobekville*  
E. W. McPherson  
(Mbr. Davidson Co.)

PICKETT COUNTY  
*Byrdstown*  
Malcolm E. Clark

POLK COUNTY  
*Benton*  
John Lillard  
(Mbr. McMinn Co.)

*Copperhill*  
H. H. Hyatt  
(Mbr. Hamilton Co.)  
H. P. Hyde  
(Mbr. Bradley Co.)  
C. W. Strauss  
(Mbr. Hamilton Co.)

*Ducktown*  
A. J. Guinn  
(Mbr. Hamilton Co.)

PUTNAM COUNTY  
*Algood*  
J. T. Moore, Jr.

*Cookeville*  
J. T. Deberry  
Lex Dyer  
Kenneth L. Haile  
Wm. A. Hensley, Jr.  
W. A. Howard  
R. H. Millis  
Thurman Shipley  
J. Fred Terry

*Granville*  
L. M. Freeman

*Monterey*  
C. A. Collins  
T. M. Crain

RHEA COUNTY  
*Dayton*  
Albert Broyles  
(Mbr. Hamilton Co.)  
J. J. Rogers  
(Mbr. Hamilton Co.)

*Spring City*  
Max D. Lindsay  
(Mbr. Hamilton Co.)

ROANE COUNTY  
*Harriman*  
Thos. L. Bowman  
H. Stratton Jones  
L. A. Killeffer

*Kingston*  
Nat Sugarman

*Oak Ridge*  
(See Anderson Co.)  
Gould A. Andrews  
R. R. Bigelow  
Marshall Bruer  
M. C. Ciaramelli  
John P. Crews  
Dexter Davis  
John DePersio  
J. L. Diamond  
P. M. Dings  
Ivan S. Felton  
Agnes N. Flack  
Wm. P. Hardy  
Wm. Holden  
R. A. Johnson  
Herbert Kerman  
Joseph A. Lyon  
Dana Nance  
Kenneth O'Connor  
Lewis Preston  
William Pugh  
Julian Ragan  
D. J. Rehbach  
Hyman Rossman  
R. H. Rucker  
(Mbr. Consolidated Cos.)  
Paul E. Spray  
H. B. Ruley  
Chas. R. Sullivan  
Dan Thomas  
R. G. Tromley  
Cordell Williams

*Oliver Springs*  
S. J. Van Hook  
Fred O. Stone  
(Mbr. Anderson-Campbell Co.)

*Rockwood*  
Robert S. Hicks  
R. F. Register  
G. E. Wilson

ROBERTSON COUNTY  
*Springfield*  
W. B. Dye  
John S. Freeman  
J. S. Hawkins  
A. R. Kempf  
R. L. Mathews  
W. P. Stone  
J. E. Wilkison

RUTHERFORD COUNTY  
*Murfreesboro*  
Carl Adams  
W. Stanley Barham



J. B. Black  
J. T. Boykin  
John F. Cason  
B. S. Davison  
S. C. Garrison, Jr.  
Gilbert Gordon  
Sam T. Hay  
(Mbr. Davidson Co.)  
R. D. Hollowell  
A. J. Jamison  
J. K. Kaufman  
Lois M. Kennedy  
M. B. Murfree, Jr.  
Eugene Odom  
B. W. Rawlins  
J. A. Scott  
Wm. W. Shacklett  
James H. Smith  
(Mbr. Shelby Co.)  
Bart N. White  
Sam L. White

*Smyrna*

George Goodall

**SCOTT COUNTY***Norma*

D. T. Chambers

*Oneida*

W. S. Cooper  
M. F. Frazier  
H. M. Leeds  
M. E. Thompson  
Milford Thompson

**SEVIER COUNTY***Gatlinburg*

Ralph H. Shilling  
Bruce H. Sisler

*Sevierville*

Troy J. Beeler  
R. A. Broady  
R. A. McCall  
Robt. F. Thomas  
C. P. Wilson  
O. H. Yarberry

**SHELBY COUNTY***Arlington*

James R. Follis

*Brunswick*

C. C. Chaffee

*Collierville*

L. P. Pearce  
R. F. Kelsey

*Cordova*

C. A. Chaffee  
W. F. Boyd

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## INDEX TO VOLUME XLIV

## INDEX OF AUTHORS

Adams, Jack	321	Hamilton, Joseph E.	372	Patterson, Russell H.	289
Anthony, D. Harbert	130	Heron, Charles S.	473	Prevo, Samuel B.	56
Ballou, Olan E.	470	Higgason, John M.	11	Richmond, Sara	51
Blake, Thomas M.	466	Horan, John S.	127	Riven, Samuel S.	460
Buchanan, Robert N.	226	Howard, G. Turner	235	Saylor, Mark L.	372
Bryan, J. Thomas	293	Hutcheson, R. H.	352	Shelley, Harry S.	45
Davidson, Orin L.	231	Kennon, William G., Jr.	405	Smith, Hugh	330
Deere, Charles J.	271, 282	Kimbrough, Robert C., Jr.	412	Stout, Arthur P.	409
Duncan, Herbert	89	Kyle, J. Warren	51	Strayhorn, David	455
Etteldorf, James N.	273	Lawson, Robert B.	493	Tacket, Hall S.	285
Fisher, Daniel F.	130	Long, Carroll H.	502	Tatum, Fred E.	278
Foote, Robert M.	352	Minot, Ann S.	365	Tyson, William T.	419
Garner, Byron O.	372	Myhr, Lamb B.	219	Ward, James W.	497
Garrett, Sam Y.	45	Newell, Cecil E.	3	Wilson, John M.	137
Gass, Orville C.	9	Newell, Edward T.	7	Witherspoon, Frank G.	141
Grossman, Lawrence A.	451	Patterson, Ashby, M.	1	Wofford, Charles P.	325

## INDEX OF SUBJECTS

Abbreviations: "ab" for abstract; "ed" for editorial; "pp" for president's page; "cc" for clinical staff conference; "cpc" for clinicopathologic conference; (\*) for original articles.

## ACTH—(See also Cortisone)

pneumonia, treatment in (ab)	38
symposium on	271

## ADRENAL, treatment of Waterhouse-Friderichsen syndrome (ab)

391

## ALLERGY, cortisone therapy of (\*)

282

## AMERICAN MEDICAL ASSOCIATION

Public Relations (ed)	36
-----------------------	----

## AMEBIASIS, treatment of (ab)

79

## ANAPHYLAXIS (ab)

78

## ANEMIA

treatment of (ed)	75
pernicious (cpc)	248
sickle cell (cpc)	25

## ANEURISM, aortic (cpc)

511

## ANNOUNCEMENTS 126, 164, 216, 267, 316, 361, 402, 447, 490, 525

## ANTIVIVISECTION (ed)

77

## ANUS, rectum and (\*)

9

fistula-in-ano, carcinoma (*)	502
-------------------------------	-----

## AORTA, aneurisms of (cpc)

511

## APPENDICITIS, in gynecology (ab)

315

## ARRHYTHMIAS (\*)

455

## ARTERIOSCLEROSIS (ed)

33

## ARTHRITIS

cortisone, effect of, in (*)	278
hypersensitivity in (ab)	257
post-partum plasma, in treatment of (ab)	355

## AUREOMYCIN

amebic colitis, in (ab)	79
bacterial resistance to (ab)	305
trachoma, in (ab)	447

## AUTOPSY (ed)

516

## BACTERIA, increased resistance to antibiotics (ab)

305

## BIOGRAPHY, Ernest G. Kelly

153

## BLOODVESSELS, anomalies, compression of trachea and esophagus by (ab)

496

## BOOK REVIEWS

266, 316, 360, 525

## BRAIN

abscess (cc)	150
tumors, fluorescein in (ab)	304

## BREAST cancer treated by hormones (ed)

437

## CALCULI, urinary, frequency of (\*)

45

## CANCER

breast, treated by hormones (ed)	437
cervix (ab)	86
endometrial (ab)	192
fistula-in-ano (*)	502
lung (cc)	506
ovary (cc)	335
pancreas (cpc)	105
prostate, smears in (ab)	161

## CEREBRUM, blood flow in neurosyphilis (ab)

39

## CHOLESTEROL (ed)

302

## CHLOROMYCETIN in therapy of syphilis (ab)

304

## CLIMACTERIC, endocrine treatment (\*)

231

## CLINICAL CONFERENCES

University of Tennessee	17, 94, 193, 379, 422
Vanderbilt University	56, 145, 239, 335, 506

## CLINICOPATHOLOGIC CONFERENCES

Baptist Memorial Hospital	67, 475
John Gaston Hospital	25, 105, 248, 429
Kennedy V. A. Hospital	343
Knoxville General Hospital	511
Methodist Hospital	295
Vanderbilt University Hospital	187

## COLLAGEN disease cortisone in therapy of (\*)

343

282

## COMMERCIAL exhibits (ed)

208

## CORTISONE

allergy, effect on (*)	282
alteration of inflammation by (ab)	116
arthritis, effect on (*)	278
cardiovascular, and renal disease, effect on (ab)	39



cardiovascular response to (ab)	354	HEART	
collagen disease, effect on (*)	282	arrhythmias (*)	455
medicine, in (*)	285	coronary disease, new drugs in (ab)	355
pediatrics, in (*)	273	disease, classification and cause (*)	451
rheumatic disease, remission by (ab)	257	disease, laboratory aids in diagnosis of (*)	466
surgery, in (*)	289	failure, diagnosis and treatment of (*)	460
suppression on tissue reactivity (ab)	116	failure, effect of humidity in (ab)	79
symposium on (*)	271	mitral stenosis, surgical attack on (ed)	206
treatment of Waterhouse-Friderichsen Syndrome (ab)	391	patent ductus arteriosus (cc)	422
DDT (ed)	350	radioactive iodine in angina pectoris (ab)	115
DEATHS 40, 80, 117, 210, 258, 306, 355, 392, 443, 484, 518		septal defect, interauricular (cpc)	429
DERMATITIS, contact (*)	141	surgery, cardiovascular (ab)	387
DESOXYCORTICOSTERONE an anticonvulsant (ab)	162	symposium (*)	451
DIABETES		tachycardia, paroxysmal (cc)	425
calcification of vas deferens (ab)	447	HEMATOCRIT tube, use of (*)	51
gangrene, streptokinase therapy in (ab)	258	HEMORRHAGE, subarachnoid, ocular signs in (ab)	315
obesity in (ab)	108	HEPATITIS, viral (*)	219
obesity, treatment of (ab)	378	HOARSENESS, importance of (*)	405
pregnancy and (ab)	474	HYPERTENSION, adrenalectomy for (ab)	442
progress of (ab)	151	INFECTIOUS mononucleosis (ab)	209
vascular lesions and (ab)	329	new entity, or (*)	412
DISEASE		INSULIN resistance (ab)	86
contagious, common, treatment of (*)	493	INDUSTRIAL MEDICINE (ed)	35
fluid, electrolyte balance in	366	INTESTINE, large, diseases of (*)	7
reporting communicable (ed)	76	INTESTINE, small, disease of (*)	3
morbidity in Tennessee	123	lipodystrophy (ab)	391
DOCTOR SHORTAGE (ed)	517	treatment of acute obstruction (*)	372
ECLAMPSIA (cc)	94	IODINE	
EDUCATION, medical, government aid in (ed)	111	protein-bound (ab)	79
ELECTROENCEPHALOGRAPHY, clinical (*)	497	radioactive, in cardiac patients (ab)	115
ELECTROLYTE balance in health and disease (*)	365	radioactive, dosage (ab)	116
EPILEPSY and psychoneurosis (cc)	379	radioactive, in tumors of thyroid (ab)	257
ESOPHAGUS		IRIS, iridencleisis (ab)	50
stomach, and (*)	1	IRON, metabolism in pregnancy (ab)	230
surgical lesions of (cc)	58	KETOSTEROIDS, in virilizing syndrome in women (ab)	391
EXAMINATION, physical (ed)	159	KIDNEY	
EYE		polycystic (cpc)	187
cellulitis, orbital (*)	470	pyelonephritis (cpc)	295
foreign body, treatment of (*)	130	LABOR, prolonged (ab)	87
glaucoma, congenital (ab)	129	LABORATORY	
iridencleisis (ab)	50	aids for practitioner (*)	321
ocular signs in subarachnoid hemorrhage (ab)	315	"cookbook" (ed)	351
treatment corneal scars (ab)	315	hematocrit tube (*)	51
trachoma (ab)	16	LARYNX, hoarseness (*)	405
trachoma, auromycin in (ab)	447	LIVER	
FOREIGN body, eye, treatment of (*)	130	function tests (*)	325
FLUIDS, in health and disease (*)	365	hepatitis	219
FLUORIDATION of water (ed)	389	tuberculosis (cc)	198
GANGRENE, gas (*)	56	LUNG	
GASTROINTESTINAL tract		carcinoma of (cc)	506
disease, symposium (*)	1	granuloma of (cpc)	25
X-ray diagnosis (*)	11	LYMPHOSARCOMA, metastasis to testicles (cpc)	475
GLAUCOMA, congenital (ab)	129	MAIL BOX	80, 259
GRANULOMA inguinal (ab)	408	MEDICAL CARE	
		cost, doctor responsibility in (ed)	256
		cost of living (ed)	303
		Layman's Vision (pp)	436
		government medicine factor in cost of (ed)	438

MEDICAL NEWS IN TENNESSEE	43, 123, 162, 211, 262, 309, 357, (ed) 390, (ed) 391, 394, 444, 487, 520	What Patients Want (pp)	253
		Wider Horizons (pp)	388
MENINGITIS		PYLORUS stenosis (cc)	17
cryptococcus (cpc)	67	RADIATION	
trauma, and (cc)	145	embryo, effect on (ab)	210
MERCUHYDRIN in cardiac disease and		RADIOACTIVE isotopes	
bronchial asthma (ab)	161	otolaryngology, in (*)	89
MESOTHELIOMA, pleura and peritoneum (*)	409	therapy (ab)	85
NATIONAL NEWS	41, 81, 121, 260, 486	RECTUM AND ANUS (*)	9
NECK, acute injury, management (ab)	514	RETINA	
NEGRO physician (pp)	480	detachment of (ab)	73
NEOMYCIN (ab)	38	detachment, preoperative treatment (*)	137
NEWBORN, effect of cord and placental blood		RHEUMATIC fever	
(ab)	225	antigen-antibody mechanism in (ab)	305
ORBIT, cellulitis, ocular changes in (*)	470	cortisone in (ab)	257
OVARY		prophylaxis on (ed)	481
benign cystomas (ab)	510	SHOULDERS, painful (*)	330
cancer of (cc)	335	SKIN	
dysgerminoma (ab)	342	contact dermatitis (*)	141
PANCREAS, cancer of (cpc)	105	pruritis, treatment of (ab)	305
PARATHYROID		SMOKE pollution (ed)	158
hyperparathyroidism (cc)	239	SODIUM chloride, depletion of (ab)	209
hyperparathyroidism and urolithiasis (ab)	16	SPEECH AND HEARING	
PERSONAL NEWS	43, 81, 124, 162, 212, 263, 312, 359, 398, 445, 488, 524	FOUNDATION	352, 395
PHOSPHORUS, radioactive effects of (ab)	38	STENOSIS, pyloric (cc)	17
POISON ivy, injections (*)	226	STERILIZATION, tubal ligation (ab)	144, 469
PNEUMONIA		STOMACH,	
Friedlander's (ab)	78	esophagus and (*)	1
ACTH, in (ab)	38	total gastrectomy (*)	419
POLYARTERITIS (cpc)	343	STREPTOKINASE (ab)	161
POLYCYTHEMIA vera (cc)	193	diabetic gangrene, in treatment of (ab)	258
POSTGRADUATE EDUCATION		SYPHILIS	
courses (pp)	74	congenital, dental hypoplasia in (ab)	161
financing of (ed)	302	Neurosyphilis, cerebral blood flow in (ab)	39
PREGNANCY		treatment with chloromycetin (ab)	304
bleeding in third trimester (ab)	418	VDRL test (ed)	110
diabetes in (ab)	474	TAX, income (ed)	208
iron metabolism in (ab)	230	TENNESSEE PLAN	
pulmonary tuberculosis, and (ab)	186	Doctor as Participant (ed)	484
PRESIDENT'S ADDRESS		Extension of (ed)	351
Ralph H. Monger	154	Who Protects (pp)	349
Ernest Kelly	203	TENNESSEE STATE MEDICAL ASSOCI-	
PRESIDENT'S PAGE	32, 74, 109, 154, 203, 253, 301, 349, 388, 436, 430, 515	ATION	
PROGRAMS—MEDICAL SOCIETIES	40, 80, 117, 162, 210, 260, 307, 356, 393, 447, 455, 518	Committees	217, 268, 363, 403, 449, 491, 526
PROPYL thioracil		Committee on Veterans Affairs, VA medical	
thyroid, normal, in (ab)	116	care	439
PRURITIS, treatment of (ab)	305	House of Delegates, Minutes of	166
PSYCHONEUROSIS, and epilepsy (cc)	379	Meeting, 1951 (ed)	206
PUBLIC RELATIONS		Officers	218, 269, 364, 404, 450, 492, 527
Milestone (ed)	114	Record, Good (ed)	37
New Look (ed)	113	Board of Trustees, Minutes of	185
We Can Not Live Alone (pp)	301	TERRAMYCIN	
		amebic colitis (ab)	79
		bacterial resistance to (ab)	305
		nausea, antacids for control (ab)	354
		TESTIS, lymphosarcoma, metastasis to (cpc)	475
		TETANUS immunization in civilian defense	
		(ed)	438
		TETRACAINE, intravenous (*)	127



<b>THYROID</b>		myoma, management of (ab)	104
goiter, nodular (*)	235	myoma (cc)	337
resistance to thiouracil (ab)	116	myomectomy (ab)	371
treatment with isotopes (ab)	257	<b>VDRL (ed)</b>	110
<b>TRACHOMA (ab)</b>		<b>VETERANS ADMISTRATION</b>	
aureomycin in treatment of (ab)	447	Government medicine, a factor in rising	
<b>TRAUMA, acute of neck, management (ab)</b>		medical costs (ed)	438
514		Medical care (ed)	255
<b>TUBERCULOSIS</b>		Medical Care, Committee on Veterans Affairs	439
adenoids, of (*)	293	Resolution, Association American Medical	
pulmonary, and pregnancy (ab)	186	Colleges (ed)	482
<b>URETER, obstruction of (ab)</b>		<b>VITAMIN D, toxic effects of (ed)</b>	254
86		<b>WARFARE, atomic (pp)</b>	109
<b>UROLITHIASIS</b>		<b>WATER, fluoridation of (ed)</b>	389
hyperparathyroidism (ab)	16	<b>WHIPPLES' disease (ab)</b>	391
frequency of (*)	45	<b>WOMAN'S AUXILIARY</b>	82, 125, 163, 213, 265, 314, 360, 399
<b>UTERUS</b>		<b>X-RAY Diagnosis, gastro-intestinal (*)</b>	11
cancer, endometrial (ab)	192		
cancer, ureteral obstruction (ab)	86		
diagnosis (cc)	98		
inversion of (*)	473		

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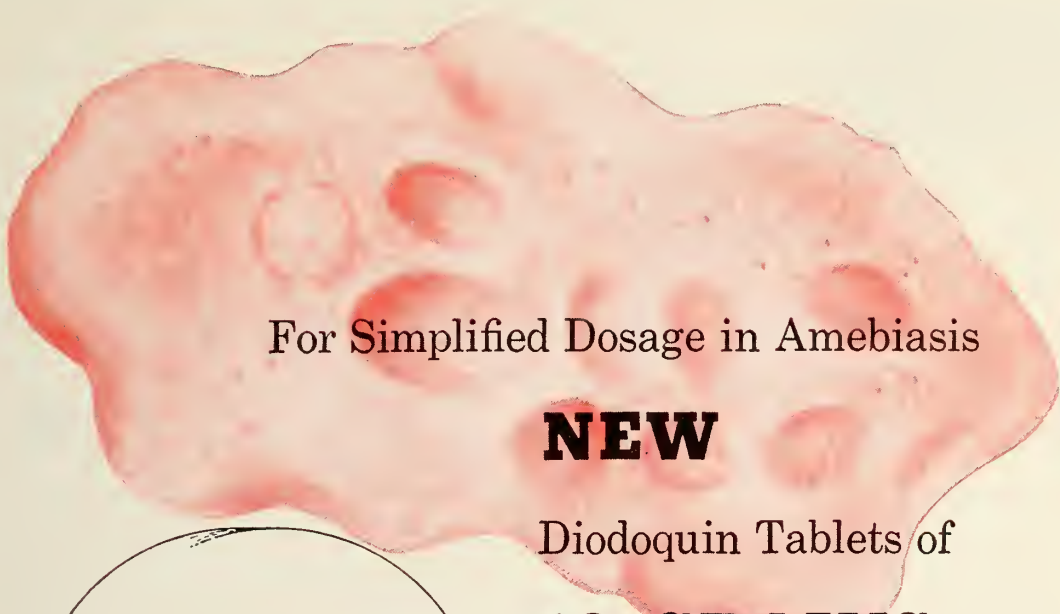
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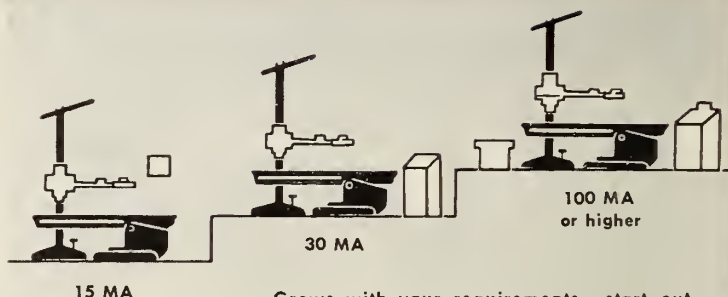
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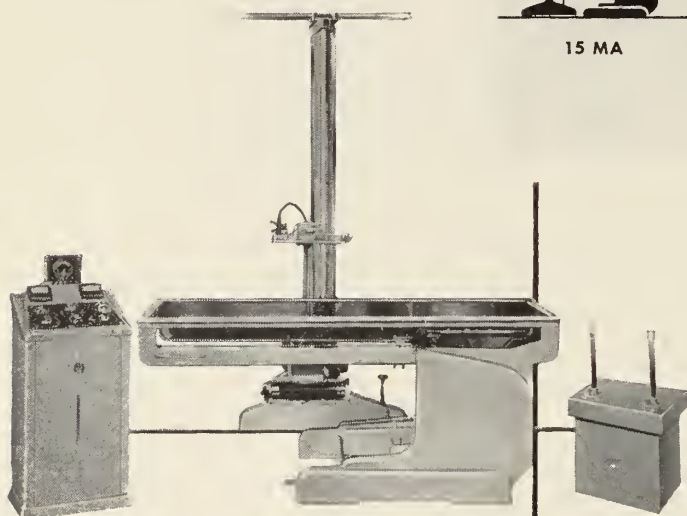
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APPROVED BY: American College of Surgeons, Council of Hospitals.

LICENSED BY State of Ohio.

D. A. JOHNSTON, M.D., Medical Director  
W. N. WRIGHT, M.D., Resident Psychiatrist  
HENRY GRUENER, M.D., Resident Physician  
ELLIOTT OTTE, Business Administrator

Rest Cottage, beautifully furnished, is a separate department devoted to the care of certain psycho-neuroses, rest, and convalescent cases.







*From the  
Executive Secretary*

## ORGANIZATIONAL NEWS

Notice of appointment to the Rural Health Committee was mailed to the ten members of this new committee on December 20th. By December 30, every one of these physicians had agreed to serve. They are:

Rae B. Gibson,	Greeneville	James S. Hall,	Clinton
Henry T. Kirby-Smith,	Sewanee	Thayer Wilson,	Carthage
Frank H. Booher,	Lynchburg	James A. Loveless,	Gallatin
Wm. N. Cook,	Columbia	Hunter Steadman,	Henderson
John L. Armstrong,	Somerville	J. T. Carter,	Germantown

This Committee was selected by the Board of Trustees on the advice and recommendations of the ten Councilors—one from each Councilor District. These Committeemen know rural health problems. They know some of the answers. They are willing to work together and with others that the health and medical care of rural areas may be continually improved.

It has been said that the Association has too many committees and that many of them are not functioning.

Here are the facts:

1. There are TWENTY committees with a total of 129 members.
2. These committeemen and their work are indispensable to the Association.
3. These men, together with the 10 Councilors, the 5 Trustees, and the 8 other officers of the Association, constitute a manpower pool of 152 persons—all charged with some constructive responsibility for carrying out the instructions of the membership and the House of Delegates.
4. These Committees, by and large, are making signal contributions to the Association, to the medical profession, and to the public.
5. Their activities embrace every aspect of a well-rounded program. Some are concerned with purely scientific aspects, some with economic problems, some with relationships with other organizations, some with social problems affecting the practice of medicine, and some are dedicated to improved relations with the public. All of them are dedicated to improving medical care, promoting health, and preserving and extending the finest system of medical care on earth.
6. Committee projects have received national recognition. For example, the Tennessee Plan of prepaid insurance has served as a model in other states. The Tennessee Ten, the Association's public relations program, has had national publicity and is regarded as one of the top-notch programs in any of the states. The Post Graduate Committee's success has earned its share of recognition and commendation—and on we could go!
7. The 129 committeemen serving the Association come from hamlets, towns and cities; some are specialists, some general practitioners; some are young, some are older; they are both rural and city residents; they reside in every district and section of the state; THEY ARE REPRESENTATIVE.



## **A Year of Accomplish- ment**

Your Executive Secretary is privileged to work for and closely with most of these committees. He has first-hand knowledge of their sincerity of purpose, their hard and unselfish work, and their accomplishments. Their reports to the House of Delegates will summarize one of the most active and progressive years in the history of this Association.

## **AMA Actions**

Highlights of the Interim AMA session last month were:

1. Established 1951 dues (AMA) of \$25.00, payable through state societies.
2. Established 1951 fellowship dues of \$5.00, payable direct to AMA.
3. Included the AMA Journal in the \$25.00 dues; specialists may receive any one of the specialty journals in lieu of the JAMA, if desired.
4. Provided for expansion of the Public Relations Department, and a curtailment of the National Education Campaign.
5. Established a new section on Military Medicine.
6. Appropriated a half-million dollars for aid to medical schools in 1951.
7. Elected Dr. Dean Sherwood Luce of Canton, Mass., as the outstanding general practitioner of the year.
8. Amended by-laws to provide that the apportionment of delegates in the House will be based on the "number of AMA dues-paying members" in the various states. Unless many states, including Tennessee, secure more AMA dues, their representation in the AMA House will be reduced. (Of the 1,953 active members of The Tennessee State Medical Association as of December 31, 1950, 1,673 have paid AMA dues. Unless we have 2,001 or more AMA dues-payers in 1951, we will lose a delegate.)

## **Important Legal Decision**

The counsel of the Association, on request of the Executive Secretary, has ruled that a local county society cannot require the payment of AMA dues a condition of membership in the local society and in the state Association. One society in Tennessee had so amended its by-laws and the headquarters office was advised that other societies were planning similar action. The legal opinion was requested in order that the local societies could be advised on the question. The attorney's findings were mailed to all society presidents and secretaries last week for their information.

One society secretary advised this office that the above opinion gave him the impression that the Tennessee State Medical Association was discouraging the payment of AMA dues, and that the decision only made it more difficult to collect AMA dues from local members.

## **Members Urged to Pay AMA Dues**

We regret this interpretation. The officers of the Association are greatly concerned that every member of the Association also belong to the AMA. But until the Constitution and By-laws of the State Association are amended to require members to also pay AMA dues, it must remain on a voluntary basis.

## **Our Record**

Tennessee's AMA dues-paying record is neither hot nor cold. We stand 17th among the 53 constituent societies of the AMA and 86% percentage-wise. Every member of the Association who has not paid his 1950 AMA dues will receive a notice from the Secretary of the AMA during January. All will be given an opportunity to pay up by January 31. Furthermore, the AMA will not accept 1951 dues until the 1950 dues are also paid. (See article on page 37)

## **Annual Meeting**

Plans are well underway for the Annual Meeting of the Association on April 9-10-11 in Nashville. Headquarters will be the Maxwell House. You are requested to make your hotel reservation now. The Maxwell House has set aside the majority of its rooms for physicians and will hold them until April 1. The Noel Hotel, just across the street, is also reserving a large block of rooms for the meeting. Other convenient Nashville Hotels are the Andrew Jackson, the Hermitage, the Sam Davis and the James Robertson.

# Public Service

## THE TENNESSEE TEN

*Last July 30, the new Public Service Committee of The Tennessee State Medical Association projected a 10-point program of solid projects. The Committee Chairman, Dr. L. W. Edwards, has been asked to report here the progress made toward execution of the Tennessee Ten.—Ed Bridges, Director*

Your Committee is concentrating just now on a project that could become one of the profession's biggest achievements. Certainly it could become a truly great humanitarian contribution. It is the broad proposal that, with Tennessee doctors treating free in all such cases as they have always done, the State Government pay hospital bills of all people formally declared to be medically indigent.

### Governor Backing Proposal

The proposal was taken to Governor Gordon Browning and he generously agreed to support it, upon condition that he could find the funds to finance such a program. Strong support also came from Dr. R. H. Hutcheson, State Commissioner of Public Health, who knows the need for complete medical care for all our people. Other supporters of the TSMA proposal are The Tennessee Hospital Association, The Tennessee State Nurses Association, and The Tennessee Farm Bureau.

The big job immediately ahead is the passage of enabling legislation through the General Assembly now in session. You are urged to make it a point to see your own legislator and urge him to support a bill to write the proposal into law.

### One Objective: Helping Sick Unable to Pay

In a recent meeting, one legislator commended the plan and called it an "anti-socialized medicine" measure. To an extent he was right. It would care for an unfortunate group of our people who have always been excluded from the compulsory health insurance bills proposed in Congress. Taking care of that group of people is our one and only objective. We have no political axes to grind. We only have a social responsibility to meet. This is our way of meeting it. We sincerely urge your active support.

Your Committee has distributed approximately 60,000 pieces of literature, placed more than 200 fifteen-minute radio programs on public service time given free by radio stations, and set up booths at several fairs.

### Information Broadcast To Public

Through public speakers, press and radio releases and conversations in every day contacts, committeemen have informed the public of the progress of medical service and science in Tennessee, of plans of the profession for the future, and we have explained the costs of medical care, with an emphasis on the improved results.

An educational program for the membership on the importance of Public Service-Point 1 of The Tennessee Ten—is being effectively carried on through the PS Committees of local Societies. They all were asked to establish such committees. Some of them had had them for years. Some have not yet appointed them.

We are pledged, by Point VIII, to assist allied groups. Our Public Service Department is directing publicity for the newly organized Tennessee Hearing and Speech Foundation and for the 1951 Fund Drive of The Middle Tennessee Heart Society.

### Medical Ethics Courses Urged

Your Committee has urged the Tennessee medical schools to institute regular required courses in medical ethics as part of their curricula.

Under the heading of "Renaissance of Professional Ethics," one courageous Society has expelled a member of long standing for use of an unethical product and the State's Association's Council firmly upheld the expulsion.



**Essay Contest  
Is Underway**

Promotion of the Woman's Auxiliary Essay Contest is another PS project. Rules and regulations were sent to every Tennessee high school last October, with source material following. The subject of the contest, "Selling America to Americans," and exact title, "The Individual—the Pillar of American Freedom," proved to be happy choices. One big city superintendent of schools said that because of the nature of the contest and the general theme he was reversing a policy of banning essay contests in his system. The eight Woman's Auxiliaries are following through with promotion of the contest.

Active support has been given toward the proper operation of the Hill Burton Law for construction of needed hospitals in Tennessee. The Committee joined the TSMA legislative committee in its fight for restoration of the \$75,000,000 that President Truman slashed from the federal share of the Hill Burton funds. It still has not been restored and 26 proposed hospitals and health centers in Tennessee are still stymied on the blueprint boards of architects.

**Intensifying  
Promotion of  
Tennessee  
Plan**

We have sought by every possible means to intensify promotion of The Tennessee Plan of voluntary prepayment health insurance. This plan has made progress that attracted national attention, thanks to the efforts of the Prepayment Insurance Committee and the Executive Secretary, who secured a \$10,000 promotional fund from some of the underwriting insurance companies.

It is planned to work with The Tennessee State Nurses Association in a 1951 campaign to recruit students who will eventually care for the sick. That is Point V of The Tennessee Ten.

The first Tennessee Regional Conference on Industrial Health was sponsored, in December, by this Committee. It was believed to have been the first such conference in the nation, where labor union leaders, medical society officials, medical directors of big industries and public health officials, sat down together to discuss the health of the American Worker. It was a stimulating and productive meeting, as reported in an editorial in this issue of The Journal.

**Public Service,  
Legislative  
Meeting  
Called**

At the request of your committee, the Nashville Academy of Medicine and Davidson County Medical Society is sponsoring a called meeting on Public Service and Legislation, in Nashville January 18, 7:45 p.m. Every doctor in Davidson County, and his wife, are invited to this important meeting. A news item in another section gives program details.

Point X, the adoption of a Press and Radio Code of Co-operation, is a project that will take time and careful consideration. It is being studied now, however, by the executive secretary of The Tennessee Press Association, Tennessee Hospital Association, and Tennessee Association of Broadcasters. Such a code has proved of considerable value in other states, primarily Colorado where it was pioneered as a means to better public relations.

Statewide interest has been shown in the proposed medical loan fund project, Point VIII. Plans are underway to get the fund off to a healthy start with a benefit this spring.

No actual figures are available yet, but it is believed that registration and voting of physicians and their families was markedly higher in the recent primary and general election than in recent years.

**Physicians  
ARE Citizens  
In Tennessee**

Physicians interested themselves, as individuals, in the records, platforms and promises of the men who sought to represent Tennesseans in the Congress and the state legislature. That activity supported Point VI—"Render public service through participation in public affairs . . ."

We appreciate this opportunity to make an interim report of progress. We give sincere thanks to the membership of the Association for its splendid support of the program. Not just moral support, but support evidenced by constructive service being delivered by the medical profession in Tennessee.

A complete report will be submitted at the Annual Session in Nashville next April 9-10-11.

—L. W. Edwards, M.D.

*From the  
Executive Secretary*

## ORGANIZATIONAL NEWS

### **Rural Health Committee to Organize**

The Rural Health Committee, recently appointed by the Board of Trustees, will hold its first organizational meeting on February 24 at the Peabody Hotel, Memphis. The Committee will elect its chairman and map out a program of activities and committee projects for this year.

### **AMA Conference on Rural Health**

Members of this Committee will take advantage of the Sixth National Rural Health Conference in Memphis on February 22-24. The Conference is sponsored by the AMA. It will afford our Committee an excellent opportunity to learn firsthand the major problems in rural health. The Committee could have no better background for planning its own program than attending this Conference. (Program elsewhere in the Journal.)

### **Emergency Medical Service Committees Commended**

High praise continues to be given the state and local Emergency Medical Service Committees for their constructive part in civil defense planning. The Committees have also played an important part in arranging for the induction examinations for the Tennessee Military District. We are advised that another call for assistance with induction examinations will be made soon, particularly in the western section of the State. Information and needs for physicians and laboratory facilities will be forwarded to the appropriate local committee by Dr. James Gardner, State Chairman.

### **Tennessee Plan Grows**

The Tennessee Plan of voluntary prepaid insurance sponsored by this Association continues its rapid rate of growth. As of December 31, more than a quarter million Tennesseans were insured under the Plan. Additional doctors are sending in their "participating physician's agreement." The number of insurance companies and non-profit associations selling the Plan is twenty-seven. This means that the Tennessee Plan is now available in every community in this State.

### **Three New Insurance Companies Added to List**

Since the last printing of the brochure describing our insurance program, three additional companies have had their policy forms approved and their companies have been added to the list of "participating insurance companies." They are:

State Mutual Life Assurance Company, Worcester, Mass.

Massachusetts Mutual Life Insurance Company, Springfield, Mass.

Bankers Life Insurance Company, Des Moines, Iowa.

### **Annual Meeting Plans**

Plans for the Annual Meeting of the Association are now complete. Every member of the Association is urged to attend. This meeting will surpass all previous meetings in interest and scientific merit. This has been an important year in the Association's history. We believe you will want to know the details of the important reports which will recount the multitudinous activities of your Association. These reports from the officers, the committees, the Council, and the Board of Trustees will be made to the House of Delegates. EVERY MEMBER OF THE ASSOCIATION IS ENTITLED AND INVITED TO SIT IN ON THE PROCEEDINGS OF THE HOUSE.

### **Reports Will Reflect Progress**

### **Highlights of the Meeting**

Here are the broad outlines of the Annual Meeting:

Date	April 9-10-11, 1951
Place	Nashville
Headquarters	Maxwell House



**Make  
Reservations  
Now**

You are requested to make your reservations immediately. Large blocks of rooms have been set aside for physicians at the Maxwell House and the Noel Hotel just across the street. Other convenient hotels are the Hermitage, Andrew Jackson, James Robertson, and Sam Davis.

**Register  
Early**

The registration desk will be located on the mezzanine floor of the Maxwell House. It will open Monday, April 9, at 8:00 A.M. Registration hours will be 8:00 A.M. to 5:00 P.M. Special badges will be provided for guest speakers, members of the House of Delegates, exhibitors, interns and residents, visitors, and of course, the regular badge for members of the Association.

**Special  
Registration  
Badges**

**Scientific  
Sessions**

Scientific sessions for the general membership will begin Tuesday, April 10, at 9:30 A.M. The sessions will be held in the Ballroom of the Maxwell House. Fourteen papers and two symposia will be presented on Tuesday and Wednesday from 9:30 to 4:30 daily.

**House of  
Delegates  
Meets  
Monday**

The House of Delegates will meet Monday, April 9, at 9:00 A.M. in the Ballroom of the Maxwell House. Monday's session is expected to require the greater part of the day for completion. MEMBERS OF THE ASSOCIATION, especially local medical society officers, are invited to sit in on the sessions of the House. A special section of the Ballroom is reserved for this purpose.

**Election of  
Officers  
Wednesday**

The House is expected to complete most of its business on Monday. It will meet again Wednesday morning, April 11, at 9:30 A.M., for the completion of the agenda and for the election of officers.

**Specialty  
Groups to  
Meet Also**

The various specialty groups will hold their annual meetings on Monday. We have not scheduled any Association program for Monday and Monday evening. This time is reserved for the specialty groups for their own programs. All specialty groups are requested to hold their annual banquet on Monday evening. Association activities are planned for Tuesday and Wednesday evenings.

**Something  
Special**

Tuesday night is "President's Night." The program will begin at 8:00 P.M. in the Ballroom of the Maxwell House. It will feature four parts—

- 1) The Presidential Address, "A Year of Accomplishment," by Ralph H. Monger, M.D.
- 2) The President-Elect's Address, "A Look at the Future," by E. G. Kelly, M.D.
- 3) Presentation of the "Outstanding General Practitioner's Award."
- 4) Presentation of winner of the Essay Contest and awarding the State prize—a \$500.00 U. S. Savings Bond.

**Annual  
Banquet**

The Annual Banquet will be held Wednesday evening in the Ballroom of the Maxwell House. Beginning at 6:30 P.M., the Nashville Academy of Medicine, through its Committee on local arrangements, will entertain at a fellowship hour in the Ballroom preceding the banquet. The banquet will be followed by professional entertainment.

**Ladies  
Invited**

SPECIAL NOTE TO THE LADIES—Remember, both the Tuesday and Wednesday evening programs are designed for your information and pleasure. You are welcome.

**Visit Your  
Exhibitors**

Every effort has been made to make the meeting a big success. One important part of the meeting is the commercial exhibitors. They contribute greatly to its scientific excellence and they HELP PAY THE BILLS! Without them, a registration fee of at least \$10.00 would be necessary. BE SURE TO VISIT EVERY SINGLE BOOTH. Thirty-minute breaks have been arranged in the mid-mornings and mid-afternoons for this sole purpose.

# Public Service

THE TENNESSEE TEN

## Doctors ARE Citizens



**Citation for  
Dr. Thompson**

**Exchange Club  
Makes Award**

Dr. John R. (Jack) Thompson, left, is shown receiving the Jackson, Tennessee Exchange Club's citation as 1950's Man of the Year, from Emmet Guy, retiring president of the Club.

Thus Dr. Thompson exemplified Point VI of The Tennessee Ten: "Render Public Service through participation in public affairs . . . ."

The long list of unselfish services he has rendered to the people of Jackson was inscribed in The Exchange Club's Book of Golden Deeds. Dr. Thompson's choice was one of the most popular decisions yet made for the Club's Man of the Year.

Fellow physicians who know how busy Dr. Thompson is caring for the sick find it difficult to believe the long list of his services as a citizen.

But there they are, recounted by a committee that weighed the services of Jackson's leading citizens and decided upon the winner.

First, Dr. Thompson was a hometown boy, president of his high school class, who went back home to serve his own, after graduation from Vanderbilt School of Medicine.

He worked hard and accomplished much in Jackson's civic, religious, athletic, economic and medical life. In time of War a decade ago, he rose to Chief of the Administration Branch, Hospital and Domestic Operations, in the Office of the Surgeon General, and won the Commendation Ribbon.

**Colonel in  
Medical Corps**

In time of peace, he continued to devote much of his time to defense, helping to reorganize the Tennessee National Guard. He now holds the rank of Colonel, United States Medical Corps.

The citation concluded: "His devotion to the highest principles of citizenship, his perseverance to accomplish good, and his personal faith in God and fellow man have enabled him to serve his community and his Country with understanding and effectiveness, typifying the best of American citizenry."

**He's Member  
of P. S.  
Committee**

This department of your Journal is gratified that the citation noted that Dr. Jack was a member of the Public Service Committee of the Tennessee State Medical Association, and a member of the subcommittee on the objectives designed to extend medical service of the highest quality to all humanity.

Many, many Tennessee doctors render solid service to their communities outside their chosen profession. Dr. Jack symbolizes them all.



Deputy Director Frank Wilson of the AMA's Washington office is something of a prophet. When he spoke to the Legislative-Public Service meeting of the Nashville Academy last month he sounded a warning.

### **Dr. Wilson Is a Prophet**

"We must watch legislation closely to see that the advocates of socialized medicine do not slip something by the name of national defense," Dr. Wilson said.

It appears that that's precisely what has been done. It was the explosive Section 23 of Senate 1. On January 30, Dr. George Lull, Chief of the AMA in Chicago, testified before a Senate Committee considering the proposal. He said in part:

"SECTION 23, S. 1, authorizes the President to socialize medical care and hospitalization for a large segment of the population by providing for the physical and mental rehabilitation by the Federal government of registrants who are rejected for failure to meet standards for physical and mental fitness prescribed by the Secretary of Defense.

### **Worse Than Other Bills**

"This is a request by the Executive Department for vast new powers and federal expenditures in an area only remotely connected with defense. Here, in the guise of a national defense measure, is a new health proposal that surpasses, in the extent to which it applies to medicine, even the compulsory health insurance bills that have been introduced for so many years."

So, the Trojan Horse once more is hauled to the gates. But thanks to the AMA Washington office, we know what's inside. The next move is up to us in the "Grass Roots."

We overheard a doctor's wife asking another why she should join the Auxiliary. There are many sound reasons, but here, at least, are eight of them.

1. To be alert at all times to further the aims of the profession.
2. To work, as a unified group, in furthering the present system of medical practice, research and voluntary insurance programs.
3. To fight socialization of the Medical Profession.
4. To study and inform ourselves so we may inform others.
5. To assist the health programs of the community.
6. To further the nurse recruitment program.
7. To advance progressive health legislation and oppose that which endangers the welfare of the people.
8. To establish good fellowship among physicians' families.

In the midst of acute world problems and our own hurried defense preparation in a time of unprecedented change, it is of vital importance that the Auxiliary and Medical Societies and Associations co-ordinate their efforts.

### **Bouquet from a Newspaper and Radioman**

Manager F. C. Sowell of WLAC, Nashville, is a radio man who frequently pays tribute to his competitors, the newspapers. Particularly, weekly newspapers. In his regular 9 A.M. Sunday program on February 4, he quoted an editorial from the Clarksville Leaf-Chronicle, which is raising funds for a critically ill boy of 14. Part of the editorial said:

"It has been the privilege of officials of this newspaper to know the intimate details of many tragic cases of childhood illness. There is no better opportunity for us to pay tribute to the kindness and charity of our Clarksville physicians and surgeons who perform many operations and spend many hours in caring for these children WITHOUT ONE DIME OF COMPENSATION to themselves.

"In our opinion this gives the lie to the contention that socialized medicine is necessary because of the inability of many people to pay for medical attention. The high cost of surgical attention comes from the many days of hospitalization that follow an operation, rather than from the cost of the doctor. This is true in the case of George Oldham. Hospital bills and nurses have built up the cost of his illness—not the very nominal fees charged by the specialists who have treated him. It is a fine tribute to the medical profession that anyone who is in need of surgery is rarely ever denied that service because of his INABILITY TO PAY."

To which Radioman Sowell added an amen and commented that somebody should toss a bouquet to newspapers who give columns and time and energy to helping raise funds for such cases. We add our bouquet to the Leaf-Chronicle and Chronicler Sowell.

*From the  
Executive Secretary*

## ORGANIZATIONAL NEWS

### Final Call for Annual Meeting

Since this is the last issue of the Journal that you will receive before the Annual Meeting, we want to give you one last reminder to make your arrangements now to attend.

THE TIME

APRIL 9-10-11

THE PLACE

MAXWELL HOUSE, NASHVILLE

WHO SHOULD ATTEND?

EVERY MEMBER OF THIS ASSOCIATION

### A Year of Accomplish- ment

Plans are now complete for one of the most important annual meetings ever held by this Association. Never were the responsibilities of the medical profession greater; never were the opportunities of leadership brighter; and never has the Association had a greater year of activity and accomplishment.

### Outstanding Scientific Program

Remembering that a well-balanced scientific program is an essential part of the Annual Meeting, the Committee on Scientific Work has spared no effort in preparing one of the finest two-day scientific programs ever presented. The Tuesday and Wednesday sessions of the scientific assembly will feature 14 papers on a variation of medical and surgical subjects and two symposia by representatives of Vanderbilt and the University of Tennessee medical schools. You will receive a detailed scientific program within a few days, complete with subjects, essayists, and abstracts.

### House of Delegates Formulates Basic Policies

The House of Delegates, meeting on Monday and Wednesday, will transact the business of the Association—hearing important reports from the Officers, Committee Chairmen, the Board of Trustees, and the Council. The House will plot the future course of the Association through the establishment of basic policy and procedure. During the coming year, the headquarters staff, the officers, the Board of Trustees, the Councilors, the Committees and other responsible agencies of the Association will carry out the instructions of the House.

### Highlights of the Meeting

Special features and highlights of the meeting are again called to your attention according to time of occurrence:

#### MONDAY

### Reports

1. Monday 9:00 a.m. First meeting of the House of Delegates in the Ballroom of the Maxwell House. Monday's meeting will hear reports of officers and committees, elect the Outstanding General Practitioner of the year, and will be the time for the introduction of amendments, resolutions, and other items of business.

### Outstanding General Practitioner

### Scientific Sessions Monday and Tuesday

2. Monday is also set aside for the annual scientific meetings of the various specialty groups, including Monday evening for business sessions and specialty banquets.

#### TUESDAY

The general scientific sessions will begin Tuesday morning in the Ballroom of the Maxwell House. No other meetings are planned for Tuesday from 9:00 to 5:00 in order to make it possible for all to attend the scientific sessions.

### President's Night

Tuesday evening is a highlight of the session—President's Night. The program will be held in the Ballroom of the Maxwell House at 8:00 p.m. and will consist of four parts:

### Awards

- 1) The Presidential Address, "A Year of Accomplishment," by Ralph H. Monger.
- 2) The President-Elect's Address, "A Look at the Future," by E. G. Kelly.
- 3) Presentation of the "Outstanding General Practitioner's Award."
- 4) Presentation of the winner of the Essay Contest and the award of a \$500.00 U. S. Savings Bond.



## WEDNESDAY

### Final Session of House on Wednesday

1. The second meeting of the House of Delegates will begin at 9:00 a.m. in the Old South Room of the Maxwell House. The remainder of the agenda will be completed including the election of officers.

2. Scientific sessions will continue from 9:00 a.m. to 4:30 p.m. in the Ballroom.

### Annual Banquet

3. Wednesday evening is given over exclusively to the Annual Banquet. The Banquet, scheduled for 7:30 p.m., will be preceded by a fellowship hour at 6:30 p.m. sponsored by the local committee on arrangements of the Nashville Academy of Medicine. The banquet will be followed by an enjoyable program of professional entertainment. There will be nothing serious, nothing boring on Wednesday evening. The whole program is designed for fun, pleasure, relaxation and good fellowship. You'll miss something special if you miss the Banquet.

### Professional Entertainment

### Ladies, Too

Many members have asked if the ladies can come. YES. Doctors' wives and sweethearts are invited to BOTH the President's Night program on Tuesday evening and to the Annual Banquet on Wednesday evening. Then, too, the Woman's Auxiliary has planned its twenty-third annual Convention to meet concurrently with the Association. Every doctor's wife is cordially invited to the Auxiliary sessions.

### County Medical Society Officers' Conference

The officers of local medical societies have been invited to attend a Local Medical Society Officers' Conference on Monday afternoon in the Ballroom immediately following the adjournment of the House. Furthermore, these officers have been invited to "sit in" on the meeting of the House of Delegates all day Monday. A special section has been reserved for this purpose. A knowledge of the activities of the Association as revealed by the reports to the House will provide an excellent background for the Conference.

### Purpose of Conference

The Conference will feature talks on local society-state society relationships, public service programs, organizational problems and a question-and-answer period. It is designed to promote a better understanding of the importance of local societies and to inform local societies of the services available from the State Association. Dr. L. W. Edwards, Chairman of the Association's Public Service Committee, will preside.

Another departure this year will be the printing and mailing of the former printed program in TWO parts:

- 1) The Scientific program and special events, and
- 2) A Handbook for the Officers and Delegates.

### Handbook for Officers

The Handbook will contain information of importance only to the Officers and Delegates such as a list of Officers and Delegates, list of all standing and special committees, expiration dates of officers and committeemen, general information, reference committee procedure, and a detailed agenda for all sessions of the House. It will provide a ready reference to information essential to the expeditious handling of the business of the House.

### Scientific Printed Program

The Scientific Program will list the subjects of the essayists with abstracts and all special events of the annual meeting. It will include the programs of all specialty group meetings and the Woman's Auxiliary program.

### Visit Exhibitors

Finally, DON'T FORGET TO VISIT EVERY EXHIBITOR'S BOOTH. Our exhibitors make significant scientific and financial contributions to the meeting. Thirty-minute recesses, mid-morning and mid-afternoon on Tuesday and Wednesday, have been provided for the sole purpose of giving you an opportunity to visit the exhibits.

### Rural Health Committee Holds First Meeting

The newly created Rural Health Committee of the Association held its first meeting in Memphis on February 24. Members present were Dr. Rae Gibson, Greeneville, Dr. Henry T. Kirby-Smith, Sewanee, Dr. W. N. Cook, Columbia, and Dr. Hunter Steadman, Henderson. Also present were Dr. H. L. Monroe, Erwin, Vice-President of the State Association, Mr. Aubrey Gates, Field Secretary of the AMA's Committee on Rural Health, and the Executive Secretary.

### Dr. Cook Chairman

The Committee elected Dr. Cook of Columbia as its Chairman and decided on major objectives and projects which the Committee should undertake.



# Public Service

THE TENNESSEE TEN

Two Men of  
Medicine  
Confer on  
Experiences



A Star for  
the Wagon

We think this picture, and this story, belong in this section of the Journal. The life of Dr. Will H. Witt, shown talking to Dr. Harrison H. Shoulders, may be described in the two words of the caption above—Public Service. But it deserves far more description and praise. And if Dr. Witt is reading this, we know he is wincing. He is truly modest, one of the traits which add to his charm and worth as both man and doctor. The picture, and the story, are presented herewith as an object lesson to young physicians who are seeking a star to which they may hitch their wagon.

300 Fellows  
Pay Tribute

Painfully shying from the camera and the spotlight his fellows put him in, Dr. Witt grumbled, "There are so many men who have done more than I have." Maybe so. We doubt it. It so happens that some 300 of Dr. Witt's fellows and former students spontaneously planned and staged a "beau geste" for him in Nashville one night last month. That tribute deserves a re-telling here in the family publication of the profession in Tennessee.

Never Heard  
from Again

Dr. Witt is well-named, except the name should be spelled with one "T." At the testimonial dinner, he told a story on himself that illustrates his self-effacement. He was teaching in medical school. The colored patient he was using for demonstration to his young medical students happened to come from Dr. Witt's home county. He sought to question him.

"Do you remember any of the Witts from your county?" he asked the patient.

"Yes, sir," spoke up the patient. "I remember Mr. George Witt and Mr. John Witt."

"Did you ever hear of Mr. Will Witt?" asked said Will Witt.

"Oh, yes sir," replied the colored man. "He left the county to go to medical school and nobody ever heard of him again."

Thus deflated, Dr. Witt has always remembered that experience.

The climax of the dinner was a beautifully couched written tribute to Dr. Witt, delivered by Dr. Shoulders, former president of the American Medical Association, in words and style of which he is master. We reprint here the complete tribute to the man who left his home county to study medicine.



"TO DR. WILLIAM H. WITT  
AN APPRECIATION

"It has been the good fortune of all of us to have been associated with you, Dr. Witt, in some capacity for a number of years.

"To many of us you have been an instructor in the art and science of medicine. To others you have been the consultant on a difficult case. To others you have been a comrade in arms in the service of our country. To all of us you have been a confrere and friend.

**Sought to  
Know All  
the Truth**

"We have observed your conduct on many different occasions and under many different circumstances. We have observed the diligence with which you have sought to know the truth. We have witnessed the quiet, unobtrusive wisdom with which you have applied the truth and imparted it to others. We have been the beneficiaries of your contributions to medical society meetings. We have seen you at the bedside of patients in the home and on the wards of the hospitals. We have witnessed your exemplary behavior on the tees, the fairways and the putting greens and in the sand traps of the golf course. We have witnessed your reactions to both victory and defeat.

**When a  
Friend Was  
in Trouble**

"We have witnessed your demeanor on festive occasions when light-hearted fun was the mood of the moment. We have also witnessed your demeanor when a friend was in trouble.

"We have experienced the thrill of your commendation of some deed you thought worthy of approval. We have also felt the sting of your disapproval couched in language that was mild and elegant.

"On all occasions and under all circumstances you have displayed the nobler attributes of the true follower of the Great Physician. You have complied with all the high requirements of the Hippocratic Oath.

"These associations with you have come to mean a great deal to us. We have endeavored to find a method by which this meaning to us might be expressed to you while we may.

**Volume  
Needed for  
Life Story**

"This brief statement is not a story of your life. Such a story would require volumes. Nor is it an obituary, for you are very much alive. It is meant to be a simple and sincere expression of the admiration and regard we have for you and of the esteem and affection we all bear to you.

"We, therefore, salute you as a fellow practitioner of medicine whose life has been an example and an inspiration to us all.

"In testimony of this a few of your friends have subscribed their names to this statement in the hope that such action on our part may bring to you a small measure of recompense in the form of pleasure and satisfaction to you for all the things you have said and done in the years that have passed and for what our association with you has meant, and still means to us."

The Memphis and Shelby County Medical Society projected a Public Relations program at a spirited session of the House of Delegates at the Memphis Country Club Sunday, March 4.

Dr. William D. Stinson, President and host, prepared for about 50 guests but interest in the meeting boosted the attendance to about 65. Several other important Society matters were set for discussion and were settled during the three-hour meeting.

**Memphis and  
Shelby  
Society PS  
Program**

The delegates voted unanimously to sponsor a medical section of the Commercial-Appeal at a future date. They will consider, and vote upon, a suggestion by this department that the Society sponsor and write a weekly health column for a Memphis newspaper.

The Knoxville Academy of Medicine adopted two Public Service projects proposed by its committee composed of Drs. Charles C. Smeltzer, chairman, R. B. Wood, O. E. Ballou, Roy McDonald and J. E. Acker, Jr.

The committee was authorized to seek the establishment of a Code of Cooperation between Society members, hospital administrators, and the press and radio of Knoxville. Press and radio representatives are now studying preliminary drafts of such a code, similar to that recently adopted by the Nashville Academy of Medicine and Davidson County Medical Society. The Nashville code is already in operation.

Also adopted at the Knoxville Academy meeting on March 6 was the committee proposal that the Academy write and sponsor a Sunday health column in the News-Sentinel. The service was offered by the News-Sentinel publisher.

*From the  
Executive Secretary*

## ORGANIZATIONAL NEWS

### Caught in the Middle

This column is caught in a dilemma. More exactly, press time, April 1, finds us on the brink of the Annual Meeting which will provide important organizational news for many issues to come. Then, too, your Executive Secretary, having prior knowledge of the fine reports of officers, committee chairmen, the Board of Trustees, the Council and other official bodies of the Association, is tempted to give a preview—preview?

That's where the dilemma comes in. Copy writing time and press time comes just before the meeting, and mailing and reading time comes just after the meeting. The writer therefore becomes guilty of being an accessory before the fact and an accessory after the fact. We'll just have to wait!

### Outstanding General Practitioner Award Popular

As of this writing, the headquarters office had been advised of at least nine candidates, sponsored by nine different local medical societies, for the Outstanding General Practitioner's Award. These candidates and their sponsoring societies were:

R. C. Kimbrough	Monroe County Medical Society
T. A. Patrick	Lincoln County Medical Society
W. E. Howell	Hamblen County Medical Society
G. D. LeQuire	Blount County Medical Society
J. T. Moore, Sr.	Putnam County Medical Society
May C. Wharton	Cumberland County Medical Society
R. W. Griffin	Dyer, Lake & Crockett Medical Society
B. H. Woodard	Maury County Medical Society
R. E. Key	Smith County Medical Society

### Blount County's Committee Cited

Since it will be too late for any comments made herein to affect the election of the successful candidate, your Executive Secretary would like to commend the Blount County Medical Society for the excellent brochure which its Committee on the General Practitioner's Award prepared in behalf of the candidacy of its venerable and beloved contestant—Dr. G. D. LeQuire. The brochure is beautifully and artistically illustrated—unfolding a panoramic and yet kaleidoscopic view of a modest man-of-medicine who, in his seventy-two years of dreaming, planning, working, has come to typify American Medicine in one of its greatest roles—The Family Doctor.

### Five New Members of Fifty Year Club

Upon nomination by the Memphis and Shelby County Medical Society, five names have been added to the Association's FIFTY YEAR CLUB. They are: Drs. W. J. Wadlington, E. C. Ham, Neumon Taylor, H. B. Jacobson, and Oswald S. McCown, Sr. These physicians, like the other 48 members of the Club, have practiced medicine more than fifty years.

The Association has forwarded the attractive gold pins to the Secretary who will award the pins at a future meeting of the Society with appropriate ceremony.



**Fifty Year  
Pins Awarded  
By Local  
Society**

Many have inquired why it was not planned to have a mass induction into the Fifty Year Club at the Annual Meeting this year. Here's why. Many of those eligible would be unable to attend the Annual Meeting. The local society enjoys the privilege of making the award at one of its own meetings, and lastly, we have learned that those eligible prefer to receive the award from their society confreres.

**Associate  
AMA  
Membership  
Clarified**

Eligibility for Associate membership in the American Medical Association will be clarified if an amendment introduced at the December, 1950 session of the AMA is adopted in Atlantic City in June. The proposed amendment would provide that "Associate membership in the American Medical Association shall be limited to those members of constituent associations who are not active members of the American Medical Association or the constituent association and who hold the degree of Doctor of Medicine or Bachelor of Medicine, subject to the provisions of the By-Laws (of the AMA).

**AMA  
Secretary  
Explains  
Amendment**

Dr. George Lull, Secretary of the AMA, in commenting on this amendment in a recent letter to state society secretaries, said that members of constituent (state) associations who are not entitled to exercise the rights of active membership in their constituent associations, including the right to vote and hold office, may become associate members of the AMA when officially reported to his office by the secretaries of the constituent associations.

**Who Is  
Eligible**

He further explained that full-time teachers of medicine, government employed physicians, and physicians in other categories who are not now eligible for active membership in component (local) or constituent medical societies but who do hold some other type of membership, by whatever name called, (associate, affiliate, honorary, etc.,) are eligible for associate membership in the AMA.

**Our Veteran  
Members  
Eligible**

This interpretation would presumably include our own Veteran members. Although we have 113 Veteran members of the Tennessee State Medical Association, we do not have any in the Associate classification as defined by our Constitution. A spot check with several local medical societies in Tennessee reveals that the Constitution and By-Laws of many local societies do not have provision for Associate Membership.

**Many Local  
Societies  
Have No  
"Associate"  
Members**

Of course, a physician cannot hold associate membership in the Tennessee State Medical Association unless he holds such membership in his local society. It is suggested that local societies review their Constitutional and By-Law provisions on "classification of membership" and bring them into conformity with those of the TSMA which provides for four classes of membership—Active, Associate, Veteran, and Honorary. Members in the last three classifications would be eligible for Associate Membership in the AMA.

**Basis of AMA  
Representation  
Changed**

Another important change in the AMA's By-Laws is that, effective January 1, 1952, representation in the AMA's House of Delegates will be apportioned on the basis of the dues-paying active members of the constituent associations.

Until now, and for the past few years, we have had three delegates to the AMA (one for each 1,000 members or fraction) based upon the total number of members, active and otherwise.

**Tennessee  
May Lose  
One Delegate**

Beginning next year, and based upon the number of active, dues-paying (including AMA dues) members which we have on December 1, it is certain that we will lose one delegate by virtue of the new basis of apportionment. Only one thing can prevent it—that is, that we have more than 2,000 active members paying AMA dues by December 1st.

**383 More AMA  
Dues-Paying  
Members  
Needed**

We had 1,618 AMA dues-paying members last year. We need 383 more to make it at least 2,001. This number would permit our retaining our three delegates.

# Public Service

## THE TENNESSEE TEN

**Putnam Society Public Service to the Schools** Point VII of "The Tennessee Ten" calls for co-operation with all groups seeking to protect the health of our people. These groups most certainly include the Parent-Teacher Association.

This point has been solidly carried out by the Putnam County Medical Society. Last month the Society voted to continue its service to the youth of the county by free school health examinations. The Society has been rendering this Public Service in the past and wants to continue it in the future.

Some top-ranking P.-T.A. officers were angered last year by the AMA's opposition to a Congressional measure being pushed by the P.-T.A. national organization. It would have placed all American children from age 6 to 18 under political medicine.

**Essay Contest Winner's Story And the Essay** The story of the brilliant high school girl who won the TSMA Essay Contest this year is one to warm the heart. It tops the Horatio Alger books and stands as an inspiration to American youth.

The winner is Altha Jane Turner, 18, senior of Rule Junior-Senior High School, Knoxville. She previously has won another essay contest, a national art prize, several Knoxville art prizes, and honors in a National Scholastic Honor Society.

She has served as school librarian, has taken all the mathematics offered by Rule Junior-Senior High, is an excellent science student, a student of nature, and she plays the piano.

Altha Jane is the daughter of Mr. and Mrs. Paul Turner of 919 West Scott Street, Knoxville. Mr. Turner is employed by the Brookside Textile Mill.

Because of the sheer excellence of the winning Essay, it is presented here for the permanent record.

### "THE INDIVIDUAL—THE PILLAR OF AMERICAN FREEDOM

"Centuries ago men were imprisoned, accused of witchcraft for daring to be different, for daring to think creatively. The continual struggle for the recognition of individual rights resulted in our America, the citadel of democracy, the home of individuals.

"In the United States, we may worship as we please, say what we wish, and vote as we desire. We have freedom of speech, of assembly, and nameless other freedoms, regardless of nationality, religion, creed, or color. As long as the basic rights guaranteed under our form of government are maintained, our freedom for the individual cannot be destroyed.



**Individualism  
Vs.  
Collectivism**

"For every privilege we Americans may enjoy in our country, we have a corresponding responsibility. We can and should be ready to defend our lives and homeland against attack; yes, but the answer of how to defend our democracy lies in each of us as individual citizens. One of the forces threatening our democratic ideals is our innate laziness and lack of appreciation for privileges which we are granted. Many of our people fight for more government unemployment compensation, socialization of medicine, and more and more security, little caring that they are destroying our federal balance, our individual enterprise by giving more power to the central government. Whether we vote, or whether we voice our opinions are matters affecting our town, our state, and our nation. Democracy, therefore, not only depends on action—democracy is action.

"The safeguard of democracy is the enlightened conscience of 'we, the people.' Democracy cannot be endangered if we as individual citizens appreciate our privileges and are conscientious about our responsibilities. The privileges are never so safe, so assured, that we should dare take them for granted.

"There are a multitude of open encroachments upon our rights as individuals. Among them are the following: Communism, Socialism, and Fascism. The attitude of the 'isms' toward the individual gives rise to our hatred of them. Because democracy respects the individual, and is based upon the individual, it sets up safeguards to protect his essential rights. Totalitarianism recognizes no individual rights that the state cannot set aside. It does not hesitate to use cruelty and barbarism against any who question its policies. Although the dangers of these undemocratic forms of government cannot be overemphasized, their powers are derived from the indifference of the individual. We should strive to eliminate poverty and unemployment, for here the 'isms' try to secure a foothold. We are not perfect, but with all our imperfections we are a nation of people who increasingly aspire to something better. In spite of our prejudices, meannesses, and shortcomings, the significant American quality lies in our persistent aspirations.

**Education  
Stifled Under  
Dictatorship**

"Education for the individual, our hope for the future, is unheard of in a dictatorship. Democracy is dependent upon our ability to learn to live together. The most difficult field in which man can set his mind is this field of Human Engineering. It is the failure of man's relations with man that has caused the crisis of our times. In the home—where citizenship begins—little children gradually learn to compromise their own desires with those of others. The best laboratory for human engineering is in the schoolroom where democracy has its best and its greatest challenge. Education, only a part of which goes on in the schoolroom, prepares us, well or badly, for the decisions our generation must make. The strength and the weaknesses of the democratic way of life lie within our borders, not outside. The fundamental concept of our Constitution is the intelligent electorate. The future of our democracy turns on our ability to maintain and raise this general level of intelligence. 'Mightier than armies with banners, the quiet, undramatic forces of education are the safeguards of freedom, tolerance, and human growth.' We have plunged into the atomic era. In such an age, a high level of universal education is imperative.

**America the  
Melting Pot  
Of Democracy**

"America is a versatile country where the Sammy Cohens, the Patrick O'Reillys, and the Joe Pasquales can work together, play together, and live together. Here, in the United States, our dignity as individuals is of primary importance. We are not dictated to, nor are we pampered; but, we are given the opportunity to develop creative powers, to grow in self-respect and self-reliance, into independent individuals, proud of our country and proud of being pillars of American freedom."

*From the  
Executive Secretary*

## ORGANIZATIONAL NEWS

### Refreshing Reflections

Now that the 116th Annual Meeting of the Association has come and gone, and the headquarters office has settled down into a reasonably normal routine, a bit of reflection is in order.

### Annual Meeting Reference Number

This issue of the Journal (note cover page) is largely devoted to a resume of the meeting. It is hoped that you will find it interesting, concise, and brief. The minutes of the proceedings of the House of Delegates and the Board of Trustees are published in abstract form. The reports of Officers and Committees are also abstracts. More than 500 pages of stenographic material are condensed into the ... pages of this published record of a great meeting.

### Record- Breaking Attendance

Here are some highlights of the meeting that are not mentioned elsewhere:

The registration at the 1951 Annual Meeting was 642—570 physicians and 72 laymen composed of exhibitors and your headquarters staff. This is the largest registration at any annual meeting since the Centennial Meeting 17 years ago.

### Exhibitors Praise Meeting

The Exhibitors at the Meeting unanimously stated that this was one of the best meetings they had ever attended. They particularly appreciated the large number of physicians registering with each booth. Other factors that contributed to the Exhibitors' favorable reaction were the time set aside for visiting booths, the pamphlet addressed to physicians requesting them to visit, the stevedore help furnished by the Association, and the various courtesies extended their personnel. All representatives have requested their companies to let them exhibit with us next year.

### Scientific Sessions Well Attended

Although your Executive Secretary had little opportunity to attend the scientific sessions, many observed that the attendance at these sessions was the largest in their experience. This fact alone attests to the high quality of the scientific program arranged by Dr. R. H. Kampmeier's Scientific Program Committee.

### Business Affairs Conducted with Dispatch

The House of Delegates, the legislative and policy-making body of the Association, moved with expediency, dispatch and precision through a tightly-knit two-day agenda. One has only to read the stenotypically recorded minutes of the proceedings to appreciate the smooth, orderly fashion in which the House conducted its meetings. The lion's share of the credit for a new record in business-like deliberations by the House is due to Dr. Charles C. Trabue IV, the Speaker. Dr. Trabue presided over all sessions of the House, ever alert, fair, and to-the-point. His evident familiarity with parliamentary procedure contributed invaluable to the efficient way the House moved through a veritable mountain of work.

### A Bouquet to the Speaker



## Another Highlight

The President's Night Program (Tuesday evening) was regarded by many as one of the highlights of the meeting. Since the proceedings of this program are not a part of the official minutes of the meeting, its agenda is published here for the record.

## Honoring Our President

An attractive printed program, "Honoring Our President," in gold lettering and dedicated to Ralph H. Monger, M.D., detailed the events of an historical and pleasurable evening. A replica follows, although devoid of the beauty and attractiveness of the printed leaflet.

Maxwell House  
Nashville

April 10, 1951  
Eight O'clock

### Presidential Address

A Year of Accomplishment . . . . . Ralph H. Monger, M.D.

### President-Elect's Address

A Look at the Future . . . . . Ernest G. Kelly, M.D.

### Presenting—

The Outstanding General Practitioner of the Year . . . . .  
C. B. Roberts, M.D.

### Response of the Winner and Award of Citation

### Presenting—

Miss Altha Jane Turner . . . . . Mrs. Frank Owings,  
Rule Junior-Senior High, Knoxville

### Winner of Essay Contest

"The Individual, the Pillar of American Freedoms". . . . .

Miss Altha Jane Turner

The Story Behind the Essay Contest . . . C. B. Roberts, M.D.

Presentation of \$500 Bond to Miss Turner . . . . .

Daugh W. Smith, M.D., Chairman, Board of Trustees

Presentation of Special Service Award. W. Milton Adams, M.D.

Recipient E. R. Zemp, M.D.

## Scintillating Program

The above program, presented before a full house, added greatly to the dignity and the charm of the Annual Meeting. The sheer stimulation of the recounting of accomplishments of the Association, the plans for its future, the provocative and heart-warming essay by the talented winner, the humor and dry wit of "Dr. Tom," the Outstanding G.P., the fine spirit and witticisms of Dr. Zemp—all added up to an evening long to be remembered.

## Fun Night

Then came Fun Night. After two days and nights of education and business, everyone was in the mood for a gala affair at the Club Plantation. No more business to transact—No more lectures to attend. By motorcade, 355 doctors and their wives and sweethearts were wished away to a pleasant finale to a grand three-day meeting.

## Nashville Academy— A Genial Host

The Nashville Academy of Medicine, the host society, had spared no effort (nor money) to put a "finishing touch" on a meeting with architectural symmetry, metaphorically speaking.

## The Grand Finale Meeting

The Gala Finale, replete with refreshments, a glorious steak dinner, a professional floor show, and dancing till . . . all well spiced with the witticism of the master of ceremonies, Dr. James Loveless of Gallatin, left little to be desired.

Dr. Tom Moore, the genial Outstanding G.P., after an exhausting and extended whirl on the "light, fantastic toe," modestly mused: "I've had a wonderful time; the Association has been too good to me . . . I don't deserve it."

## Becomes History

Thus a fine meeting, designed for education, business, and fun, became history.

# Public Service

## THE TENNESSEE TEN

The Hamilton County Medical Society will conduct a special session the night of October 18 for all doctors and their wives in Hamilton and Bradley Counties, devoted to public service and legislation.

Dr. J. L. Hamilton, President of the Hamilton County Society, Dr. Guy Francis, Program Chairman, and Mrs. David Hickey, Public Relations Chairman for the State Auxiliary, are in charge of arrangements for the meeting.

Session speakers will discuss legislation passed and pending before the state and national legislatures and public service projects now under way by the Public Service Committee of the Tennessee State Medical Association.

A social hour will follow the special meeting.

**Dr. Owen and Dr. Frere on PS Committee** This department welcomes two new members of the Public Service Committee. They are Dr. W. K. Owen of Pulaski and Dr. Marsh Frere of Chattanooga.

Dr. Owen succeeds Dr. Thomas A. Wheat, who has been critically ill for several months. Dr. Frere replaces Dr. Franklin Bogart, resigned. Dr. Wheat and Dr. Bogart made solid contributions to the Public Service Program in its first year.

Dr. Owen is immediate past president of the Middle Tennessee Medical Association. Dr. Frere has long been a leader in affairs of the Hamilton County Medical Society.

### Another Point in Operation

Another Point in the Tennessee Ten has been put into operation. Point II calls for a Renaissance of Professional Ethics. To spur this Renaissance, the Committee asked Medical Schools in Tennessee to institute courses in Medical Ethics as a vital part of their curricula. This came under Point IX.

It's a pleasure to report that Vanderbilt and the University of Tennessee Medical Schools have begun such courses. They are being given for seniors. They are taught by men who have the highest concept of professional ethics.

### Young Medicos to Open Red Boiling Hospital

Another Tennessee community which has been appealing for doctor manpower and hospital facilities will soon get both.

Citizens of Red Boiling Springs have appealed to the State Association and to the Upper Cumberland Medical Society for assistance.

The Macon County Times reports, with understandable enthusiasm, that two young physicians have bought the Cloyd Hotel in Red Boiling Springs and will convert it into a hospital.

The doctors are young men who are going back to serve the general section of Tennessee where they were reared. That is an admirable and encouraging thing.

Dr. Hugh Edward Green is a native of the Pleasant Shade section of Smith County. He graduated from U-T School of Medicine last December and since then has been interning in Baptist Memorial Hospital in Memphis.

Dr. Johnnie Clariday, a native of the Riddle section, graduates from Vanderbilt School of Medicine in late May. Last summer he worked in the Murfreesboro hospital.



Both young men are married. They plan to convert the hotel into a 75-bed hospital, after the summer season closes at the resort. It is expected the hospital may open about July 1, 1952.

**Solid Press  
and Radio  
Coverage for  
Convention**

Newspaper and radio coverage of the recent Annual Session was heavy and solid despite such competition for space as the ouster of General MacArthur.

The President's Night program furnished particularly good material for both news stories and editorials, such as the messages of Dr. Moninger and Dr. Kelly, the presentation of the Essay Contest Winner, and the award of the first Outstanding General Practitioner of the Year—Dr. Tom Moore of Algood.

Nashville papers published five editorials on the meeting, three of them in one edition. Editorials still are coming in from papers throughout the state. Picture coverage was excellent and radio stations interviewed our "celebrities."

The press and radio have for years been among medicine's best friends and we owe them a continuing appreciation.

**Thanks for  
Your  
Cooperation  
with Our  
Exhibitors**

We wish to thank the physicians who attended the Annual Session for their excellent cooperation in our efforts to make the meeting pleasant and profitable for the exhibitors. You visited them, you registered, and you expressed genuine interest in their contributions to medical progress. All this they told us after taking a poll of the exhibitors.

The upshot of your cooperation was that these men sent to their home offices reports strongly recommending that next year they should return to exhibit with the TSMA.

**Our Next Big  
Legislative  
Job**

Our next big legislative job is to contact candidates for the 1953 General Assembly and urge them to vote an appropriation for the Public Service Committee's Plan for Complete Care for the Medically Indigent.

As Dr. C. M. Hamilton, legislative chairman, put it in his report to the convention, the time to contact these men is "while they are running rather than after they are elected."

There should be tremendous public support for this humanitarian project, but our job is to impress upon the next group of legislators that we MUST have a state appropriation so that the people may receive the benefits as early as possible in 1953. Perhaps that seems far in the future. But the State of Maryland has been 48 years perfecting a similar program.

**Personnel  
of the  
Commission  
Is Announced**

Dr. L. W. Edwards, Public Service Committee Chairman, announced to the Convention the personnel of the State Study Commission created by the recent legislature. This Commission will make an exhaustive survey of the exact needs of state purchase of hospital care for the poor, then report to Governor Browning not later than October, 1952. He then will send his recommendation to the 1953 Assembly.

Dr. R. H. Hutcheson, State Public Health Commissioner, is Chairman of the Commission and will call an organizational meeting sometime soon.

St. Mary's Memorial Hospital in Knoxville is not waiting for the state plan for indigent to be completed. They are pioneering the field and opening, probably in late May, a systematized Clinic for the Medically Indigent of East Tennessee.

The Clinic is planned to benefit the medically indigent of some 17 East Tennessee counties, who will be referred, by appointment, on clinic days, by their family physicians.

Sponsor of the Clinic is the Resident and Intern Training Committee of St. Mary's Staff. Sister Mary Annunciata, the hospital administrator, generously agreed to institute the Clinic. All medical and surgical work will be done, without any fee whatever, by the hospital staff members.

Besides rendering a badly needed service, this Clinic will serve as a pilot test and furnish invaluable information for the planners of the State Plan for Indigent Care.

The Public Service Committee of the Knoxville Academy of Medicine is giving strong support to the new Clinic and its operation.

*From the  
Executive Secretary*

## ORGANIZATIONAL NEWS

### House of Delegates To Be Called

A CALLED MEETING OF THE HOUSE OF DELEGATES will be held in the Andrew Jackson Room of the Andrew Jackson Hotel, Nashville, on Sunday, July 8. Registration will begin at 9:00 a.m. just outside the AJ Room.

### Purpose of Called Meeting

The purpose of the meeting as stated in President Kelly's official call is to determine the pleasure of the House with respect to extending the benefits of The Tennessee Plan. President Kelly called the meeting upon request of the Prepaid Insurance Committee. The extended benefits deemed desirable by the Committee after 22 months experience in administering the Plan exceed the authority now vested in the Committee and will require House action.

### Prepaid Insurance Committee to Report

The session will begin with a report of the Prepaid Insurance Committee by Dr. N. S. Shofner, Chairman of its Executive Sub-Committee. The report will review the experience of the Plan, both its problems and its accomplishments. Finally, the Committee will make specific recommendations to the House. These recommendations, if approved by the House, will authorize the Prepaid Insurance Committee to make the following changes in the Tennessee Plan:

### Recommendations of Committee

#### Plan "A"

1. Retain the present \$2400-3600 income limit policy for full coverage to the lower income groups with a \$200.00 maximum benefit. Present fees to be adjusted to remove as many inequities as possible, said basic Plan to be known as Plan "A".

#### Plan "B"

2. Raise the present income limits (with a corresponding increase in the fee schedule) which would constitute Plan "B" for sale to individuals and groups not now fully protected under Plan "A".
3. Re-define "family income" for easier administration of the Plan
4. Add medical care benefits (in hospital only) on an optional basis.

### Fee Schedule Revision Study Completed

The Executive Sub-Committee, after months of study and numerous meetings, has completed its revision of the fee schedule as applied to the original Tennessee Plan (\$2400-3600 income limits) with a \$200.00 maximum benefit. Many fees in every section of the fee schedule have been raised, some substantially, some slightly. A few have been lowered. The consuming desire of the Committee has been to correct as many of the inequities and imbalances of the old schedule as possible. The revised schedule represents the Committee's long and conscientious efforts to make the basic schedule as fair as possible to the general surgeon and the various specialties concerned.

### \$200.00 Plan A Schedule Adopted by Committee

### New Schedule to Replace Old As Rapidly As Possible

The new schedule will be incorporated into the Tennessee Plan "A". All underwriters will substitute the new schedule for the old in ALL sales after official date. Present contracts will be honored until their expiration date. This will require at least a twelve-months "change-over" adjustment period.



**Journal  
Advertising  
Rates  
Increased**

The Board of Trustees has approved an "across-the-board" increase in our Journal advertising rates of 15 percent. The new rates go into effect July 1, 1951 and apply to all new contracts. All present contracts will be honored until their expiration under the old rates. The increase will produce an increase in Journal advertising income of \$2,225.00 annually.

**A Tough  
Problem**

An underwriter of the Tennessee Plan informed your Executive Secretary recently that seething dissatisfaction existed within a large employed group (thousands) insured under the Tennessee Plan because of an alleged violation of a "participating physicians agreement" on the part of one physician, and by an alleged excessive assistant's fee by another physician to the same patient.

**Much at  
Stake**

Thus one irregularity produced disastrous results—the good faith of physicians in supporting The Tennessee Plan was questioned—the insurance program of a large industry was at stake—and the underwriter—they were worried, too.

**Local  
Physicians  
Respond  
Immediately**

A call to the President and Public Service Committeemen of the local East Tennessee medical society resulted in immediate arrangements for a conference with representatives of the union, the management, the medical society, and your Executive Secretary.

**Representative  
Conference**

Union officials present at the dinner meeting were the President, the Business Agent, and Committeewoman of the union's Insurance Committee. The Underwriter was represented by its local agent.

**Grievances  
Presented**

Utter frankness and good faith on the part of doctors present soon "broke the ice" (and was it icy?) The union officials related well-grounded gripes and grievances about the profession, and about certain experiences with The Tennessee Plan in particular.

**Good Faith  
and Sincerity  
Solves the  
Problem**

Moving rapidly, the doctors assured the union officials that they "meant business" about correcting abuses and invited them to file written complaints with a Grievance Committee that was to be appointed immediately after the meeting. Furthermore, the physicians arranged to have their Public Service Committee to undertake a program of educating physicians and the public about The Tennessee Plan.

Results?

**Results**

1. The physicians were invited to address the full union membership on The Tennessee Plan in the near future.
2. The union officials shifted from belligerency to friendly understanding and cooperation.
3. They thanked the physicians for taking cognizance of their problems and for giving them a mechanism for "airing their gripes". These dissatisfactions, UNTIL NOW, had been the subject of extended union hall discussion.
4. The incalculable result was that 5,000 potential (and actual) critics of the medical profession were, as the result of one meeting, converted into 5,000 potential friends!

**Good Public  
Service Is  
Good Public  
Relations**

The President of the union followed your Executive Secretary to his car, talking complimentarily for thirty minutes about the meeting. Concluding, he said: "I can hardly believe it! We can take our grievances to the doctors now. About all we have done so far is to raise ——— in the union hall about them. We're getting somewhere. Why don't the hospitals have Grievance Committees, too?"

# Public Service

THE TENNESSEE TEN

## Just What the Doctor Ordered

Every member of the Tennessee Medical Association is urged to order from the AMA a batch of copies of the reprint, "What About This Doctor Shortage?" appearing in the June issue of Reader's Digest.

Author Paul de Kruif had done a solid and effective job of dealing with the deceptive propaganda about a doctor shortage. More important, he has shown what the people themselves can do about medically-isolated areas.

de Kruif concludes near the end of his article:

"The continuing threat of socialized medicine has served one wholesome purpose. It has aroused state and local governments, civic and medical societies, to correct by local effort the deficiencies in our medical service. As a result, we're going to have plenty of good modern doctors."

So, doctor, please order these reprints, from the Public Relations Department, American Medical Association, 535 North Dearborn Street, Chicago, and display them prominently in your waiting room so your patients may learn ALL of the truth about medical service today—and tomorrow.

## Brother Biemiller Is a Guide Now

Perhaps you've wondered what happened to the wildest-eyed advocate of compulsory health insurance in the late Eighty-First Congress. Medical Economics has the facts.

The name is Andrew J. Biemiller, Wisconsin Democrat. His advocacy of socialized medicine won for him the lasting gratitude of Oscar R. Ewing but considerable coolness from the voters back home. They turned him out of office last November 7.

Just to keep Mr. Biemiller from moping about it, Friend Oscar has appointed him a special consultant to the Federal Security Agency at \$50 a day (tax money). His first mission: acting as a guide to four members of the Japanese Diet who are here to make an impartial study of the U.S. health and welfare problem.

If guides come that high now, the Indians probably would like to have the country given back to them.

## Bradley County Society Scores in Civic Move

The Cleveland Banner commends the Bradley County Medical Association for a public service project. In cooperation with the City Commission, the Society sponsored an ordinance providing for the installation of machinery to fluoridate the water supply—a proven method of fighting tooth decay in younger children.

## Public Service Committee Has Lost a Champion

When Dr. Tom Wheat of Lewisburg died on May 9, the medical profession and the people of his section lost a young man who cherished and enriched the heritage handed down to him by men of medicine for centuries gone.

The Public Service Committee lost a member who really knew the full meaning of public service, who felt deeply the need for emphasizing service above self, and who made some solid contributions to first year's program.

Proof enough of Dr. Tom's sterling worth as a man and as a doctor was the stunned grief of the people who attended his funeral. Those people felt, and showed, a sense of irreplaceable loss.



**Washington  
County to  
Aid Indigents  
in Hospitals**

Another county—Washington—has followed the pattern of Unicoi in arranging to provide free hospital care for the medically indigent.

Here is the procedure to be followed:

1. The admitting physician should make the usual room reservations with the admitting officer of the Memorial Hospital in Johnson City.
2. Physicians should call County Judge Chase explaining the need for hospitalization. Judge Chase will pass on the indigency of the patient and give verbal approval to the physician. The written authorization will follow and will be sent to the hospital.
3. Emergencies coming in at a reasonable hour should be cleared with Judge Chase by telephone. Those coming in at a very late hour may be admitted and approval secured the following morning. In case of emergency hospitalization the patient should be seen by a doctor prior to admittance to the hospital.

**County Billed  
by Hospital**

4. The county will be billed by the hospital at the rate of regular hospital charges, less 10 per cent. This places the responsibility for the lowest cost per patient directly on the hospital and the doctor. It will therefore not be possible to use high cost drugs, such as ACTH and others, without definitely clearing this with the county judge so that he is aware of the cost. If this plan for the payment of the indigent care is to prove satisfactory, the physicians should use restraint in prescribing medications and treatments which are compatible with good medical practice. It is further agreed that all indigent patients must be placed in the lowest-priced facility, on a four-bed ward.

The agreement was signed for the hospital by the Administrator, Edgar H. Stohler.

This department sends a verbal bouquet to the Memorial Hospital, to County Judge Chase, and to the Washington-Carter-Unicoi Medical Society members for this humanitarian move.

**Medical  
Items and  
the Press**

Responsible book and newspaper publishers are constantly on the horns of that proverbial dilemma with respect to medical items.

On one hand there is the desire not to give the public false hopes by uncritical optimistic reports on new drugs and procedures. On the other hand is the avid public appetite for such news plus the tradition of the free press.

A charlatan or a crackpot could write a book on his methods of "curing" cancer, insanity, or some other ailment. If the publisher seeks advice from a medical society, he will probably be advised to withhold release until the procedure has been tested by standard scientific methods and found to be effective according to sound criteria. The author will then urge the publisher to proceed, arguing that physicians are naturally conservative, and perhaps the author will remind the publisher that Christopher Columbus was once considered a crackpot too.

The newspaper article presents a much bigger problem than the magazine piece, because of the pressure of deadlines. Here each local editor must decide whether to publish the item that comes in on the wire service or is brought to the office by one of his own reporters. He has a right to look to the county medical society for guidance. Sometimes when he does so he is told that a committee must pass on the matter. Since he is publishing a daily paper, not a yearbook, this may then wait for the next committee meeting, he is likely to go ahead and publish the item anyway. It is all very well for the medical society to condemn this as irresponsible journalism, but a more constructive approach would be the designation of a society to pass on such stories immediately. There is, of course, some danger of impulsive judgment under such pressures of time. But compared to the alternative, this would seem like a worth-while risk.

*From the  
Executive Secretary*

## ORGANIZATIONAL NEWS

### Highlights of Called Session

In called session in Nashville July 8, the House of Delegates of The Tennessee State Medical Association authorized its Prepaid Insurance Committee to design and approve for sale a companion plan to the basic Tennessee Plan with broad extension of benefits. Fifty-seven delegates attended.

The Executive Sub-Committee presented the results of a long and tedious study and offered a resolution embodying three extensions of the basic plan. House Speaker Dr. Charles C. Trabue IV called for discussion and action on the extensions separately. The extensions, set forth verbatim in the resolution below, were authorized.

### THE RESOLUTION

### Resolution Adopted

"BE IT RESOLVED by the House of Delegates of the Tennessee State Medical Association:

"1. That its Prepaid Insurance Committee and the Executive Sub-Committee be authorized and instructed to design and authorize for sale a companion plan to the basic Tennessee Plan with the following provisions:

"Income limits \$3,000.00 per year for a single person and \$4,500.00 for a person with dependents, and providing proportionately greater fees and maximum benefits for said plan, and to be known as 'Plan B.' (Carried unanimously.)

"2. That the said Committees be authorized and instructed to design and authorize for sale an optional insurance rider providing medical (non-surgical) in hospitalized cases for both Plans 'A' and 'B' on a service basis (one dissent); and

"3. That the term 'family income,' presently defined as 'total family income,' be redefined as 'the income of the principal wage earner.'" (Two dissents.)

Maclin P. Davis, Chmn.	)	
John T. O'Connor	)	
Clyde York	)	
R. H. Peoples	)	Members of the Prepaid
R. B. Wood, M.D.	)	Insurance Committee
J. P. Sloan, M.D.	)	
Joseph W. Johnson, Jr., M.D.	)	
W. C. Chaney, M.D.	)	
N. S. Shofner, M.D.	)	

### Old Policies to Be Honored

Underwriters will need at least 90 days for publication of policies with the new fee schedules. Then they will be offered for sale. When this sale begins, no company may again sell the original Tennessee Plan with the old fee schedule. However, all of the 300,000 original Tennessee Plan contracts (\$175.00 maximum benefit) will be honored and serviced by participating physicians until they expire.



**"Change-Over" to Require Time**

Some old plan policies may expire before the new policies are ready for sale. In such instances, your Executive Secretary is urging our Underwriters to sell the old plan on a monthly basis, telling the client that a broader benefit plan is upcoming, or to arrange a plan for automatic conversion to the new plan.

In his report of the unusual progress of The Tennessee Plan, Dr. N. S. Shofner of Nashville, Acting Chairman of the Executive Sub-Committee of the Prepaid Insurance Committee, told the delegates that several other states and the Possession of Hawaii were working out insurance systems patterned after The Tennessee Plan. He concluded:

"We believe that the time has come for improving and extending its benefits to the public."



**Tennessee Well Represented at AMA Sessions**

A large group of Tennessee physicians attended the AMA sessions in Atlantic City last month. Among those registered were F. B. Bogart, Chattanooga; H. B. Everett, Memphis; Joe W. Mason, Memphis; B. M. Overholt, Knoxville; S. R. Teachout, Nashville; Marshall Brucer, Oak Ridge; R. N. Buchanan, Jr., Nashville; S. C. Garrison, Jr., Murfreesboro; A. M. Lefkovits, Memphis; R. S. McCleery, Nashville; Donald C. Nelson, Jonesboro; E. P. Odom, Murfreesboro, Sam H. Sanders, Memphis; Hugh Smith, Memphis; D. H. Sprunt, Memphis; E. L. Tarpley, Nashville; Kate Zerfoss, Nashville; J. E. Acker, Knoxville; E. B. Anderson, Nashville; G. A. Andrews, Oak Ridge; B. D. Googe, Concord; J. M. Ivie, Nashville; A. E. Keller, Nashville; J. S. Lyon, Oak Ridge; Fred E. Marsh, Chattanooga; Geo. R. Meneely, Nashville; T. D. Moore, Memphis; C. B. Olim, Memphis; H. S. Shoulders, Nashville; O. S. Warr, Memphis; Harwell Wilson, Memphis; along with your Delegates, Drs. R. B. Wood, W. C. Chaney and C. M. Hamilton and your Executive Secretary.

**All Delegates On Hand**

**A Big Crowd**

The scientific size of the meeting can be wrapped up in the following: 358 papers, 297 exhibits, 37 motion pictures, 17 T-V broadcasts—all attended by 12,229 physicians and 16,167 others milling about as guests and what-not. 28,396 persons (total registration) is a lot of extra people for even a big convention city like Atlantic City to handle.

**Significant Actions Taken**

The House of Delegates, composed of more than 200 elected delegates and Officers of the A.M.A., moved rapidly through a mountain of work. Significant actions were:

1. Retained Whitaker & Baxter on half-time basis for 1952.
2. Adopted resolution approving federal aid to medical schools for construction only.
3. Authorized expansion of AMA's Physician Placement Service.
4. Adopted resolution urging investigation of the "welfare state" indoctrination in public schools.

5. Elected Dr. D. B. Allman, Atlantic City, to Board of Trustees to fill the three-year unexpired term of Dr. Louis Bauer, New York, who was named President-elect. Dr. Walter B. Martin of Virginia was re-elected to the Board of Trustees for a five-year term.

**Medicine Accentuates the Positive**

Dr. Elmer Henderson, the retiring president, key-noted his presidential address with the statement that the medical profession had met the threat of socialized medicine with an accelerated, positive program designed to advance the health of the nation. Voluntary health insurance plans drew high praise from the President.

**Multitudinous Activities of AMA Cited**

Dr. John Cline, California, President said in his inaugural address that "no health crisis or medical emergency exists in this country" while citing the operations, aims and objectives of the AMA.



**A New Underwriter for The Tennessee Plan**

The Liberty Life Insurance Company, Greenville, South Carolina became the twenty-ninth underwriter of the Tennessee Plan when its policy forms were approved June 27th.

**The Tennessee Plan Widely Recognized**

The Tennessee Plan continues to attract wider and wider national attention. During the last month the Executive Secretary has furnished information about the Plan to six other state associations, four of which are definitely planning to use it as a pattern for their own plan.

# Public Service

## THE TENNESSEE TEN

Please, Dr.  
Henderson

This is a respectful but firm protest against Dr. Elmer L. Henderson's unfortunate public statement that the fight against compulsory health insurance is virtually won.

Numerous Tennessee doctors, at least, have lamented the statement as poor psychology, weak public relations, and as a distortion of the true situation.

The bad effects of the statement, top-headlined on many a U. S. front page, could be these:

1. Those doctors who do not keep up closely with the fight on Mr. Ewing's schemes may be lulled into a false sense of victory. Many actually will relax their own efforts to protect their patients against political medicine.

2. The statement was a bright red flag waved in the faces of the advocates of socialized medicine. It will needle them into renewed activity, make them lie awake nights dreaming up new approaches.

3. A certain gentleman from Missouri noted for hard-headedness certainly won't accept the declaration that he's been slapped down.

4. Oscar Ewing's immediate reaction to the statement was to slip in another "sleeper" bill designed to sneak in the back door to compulsory health insurance. (See June Bulletin of AMA Washington Office.)

If You've Got  
the Time . . .

A recent issue of a Tennessee labor union newspaper, sniping at the AMA's newspaper advertising campaign, declared that labor unions would never give up the fight for compulsory health insurance. The writer of that column said to the medical profession: "If you've got the money, we've got the time." She went on to tell how long unions had fought, and waited, for legislation they had sponsored.

Granted that the medical profession has six or seven times blocked Mr. Ewing's sly schemes. It has been like cutting off one of the heads of the serpentine monster of mythology. Another grew.

Ewing's latest bill would provide "free" hospitalization for persons 65 and over, and for widows and dependents of those 65 and over who were on social security.

It is obvious that this legislation during next year's elections—and issue for Fair (Raw) Deal candidates escape hatch so they can avoid going in an effort to provide them with an issue of compulsory health insuring before the people on the direct ance.

This legislation, of course, primarily would affect hospitals and non-profit and commercial hospitalization policy underwriters.

By some special magic, Oscar Ewing is determined to start this nation on a compulsory health insurance program. He estimates that his latest scheme would cost only 200 millions annually and says no new tax would be needed.

Let's  
Remember  
"Caveat  
Emptor"

Undoubtedly this plan will evoke widespread sympathy. But Mr. Ewing's grandiose schemes require careful and searching examination, especially when he says that no new tax will be required "for the present."

Both in Congress and among the public there is a justified tendency to remember "caveat emptor" (let the buyer beware) when listening to Mr. Ewing's siren songs.

The rates of contributions to the social security system are already being raised at intervals to meet the costs of the program expanded by Congress in 1950. Yet Mr. Ewing tells the people he has plenty of money to start this new program if Congress will only authorize him to divert the money. There was never a more treacherous word in government financing than "divert."



What was President Truman's reaction to the claim of victory over his pet project? It was evasive, backhanded and full of double meaning. He offered to give up his health plan if his critics would "come up with a better proposal—or even one that is almost as good." Obviously he has already decided that his plan is the only one. He closed his mind before he opened his mouth.

The President recognized the growth of what he called "private health insurance plans" in recent years and said he welcomed it, although he feels that these plans "do not meet the problem." It seems the President minimized the gains made on the voluntary basis.

### Growth Soars Voluntary Way

The President says that seventy-five Million Americans have no health insurance at all. Why the negative approach? If this means that the other seventy-five million do have some protection against the cost of illness, the gain is enormous. While much remains to be done, both by way of extending the coverage of voluntary plans and in many ways enhancing the benefits paid, we believe that any compromise likely to be considered by Congress will have to be built on the voluntary foundations already laid.

So it is obvious that President Truman and Mr. Ewing, whom the President makes no move to dethrone as the FSA Czar, still cling to the un-American word "compulsory" when they think of health insurance.

We agree with Dr. Henderson that there is no remote chance of passage of an outright and broad compulsory health insurance bill by Congress in the foreseeable future. But we hope medical leaders will confine to whispers among themselves any statements that the battle is absolutely won.

### PR Begins with Doctor

The temperature in Nashville was 5 degrees below zero. A worried friend of mine called, at 9 p.m., and asked if a doctor would come to his home to see his wife. She had been ill for two days. I didn't ask him why he didn't call a doctor when she first became ill. He was too worried for a question like that.

The first doctor I called said he certainly would go. In the 5-below temperature, he quickly drove six miles, eased the patient, calmed the husband, and left.

It so happened that over the bridge table this friend had been rather critical of doctors. I wondered how he would feel now, so several weeks later telephoned him to ask if his wife had recovered. He was a changed man. He was most grateful to the doctor and warm in praise of the medical profession as a whole.

"What really floored me," said the friend, "was that the doctor sent me a bill for only \$5. I wouldn't have gone out that night for \$25. I thought of just writing him a check for \$25."

This story is related as a perfect example of the axiom that "public relations begin in the doctor's office, or in the home of the patient."

### Next Public Service Project Is Vote Survey

The next project of the Public Service Committee will be a complete survey of the Association membership to determine how many members, and their family members, are registered to vote.

Because of many national and international problems, your vote in the elections next year will be more potent than it ever was. The Great American privilege is that of griping about the government or what have you. But we hardly can qualify for that privilege if we fail to register and vote.

The medical profession in Florida demonstrated in a dramatic way what can be accomplished by an aroused and voting citizenry. And in that case doctors were acting as individuals, not as organized medicine.

You soon will receive your survey letter and return card. Your Public Service Committee urges you to register yourself and all eligible members of your family and return the card. We want to report in the public press before next year's elections that the medical profession in Tennessee is registered to vote 100 percent.

*From the  
Executive Secretary*

## ORGANIZATIONAL NEWS

### Doctors Help Fund Drives

Tennessee physicians have responded generously to numerous fund drives, some of them for health purposes, others for the improvement of citizenship.

Within the past two months Dr. L. W. Edwards and Dr. N. S. Shofner, members of the TSMA Public Service Committee, wrote letters urging members to contribute to the Tennessee Committee for the Hoover Commission.

The response to the letters was prompt and encouraging. The Committee for the Hoover Commission has asked that one more appeal be made—here in this section of the Journal—to those physicians who have not joined this effort to promote a more wholesome, efficient and economical government in the United States.



### Five-County Society Hits Attendance Peak

Tennessee doctors have more and more meetings to attend and sometimes this causes the attendance record of the local Medical Societies to suffer. However, there are a few Societies that mark up excellent attendance records throughout the year.

Possibly the outstanding example of solid and consistent attendance is the Five-County Society embracing Putnam, White, Jackson, Cumberland and Overton. At the last meeting in Jamestown, 39 of the 43 members were right there. Dr. L. R. Anderson of Gainesboro is President of the Five-County Society and Dr. Harold Andrews of Sparta is Secretary-Treasurer.



### Registration- Poll Response Cheering

The Public Service Committee is polling the Association's membership in an effort to achieve 100 per cent registration for voting in all elections, and 100 per cent voting, barring providential barriers.

The response to the postcard poll has been prompt and heartening. If the remainder of the cards still out are returned with the same scores as those received, we may be able to issue a press release saying that 90 per cent of the membership is registered. Many doctors also reported their wives and all eligible immediate relatives residing in the same county were qualified to use the franchise right.

If you have not returned your card, you are urged to do so, as soon as you and your wife are duly registered—if both of you are not now qualified. That is one more way to prove that "Doctors ARE Citizens."



### Senator Murray Polls Governors on Physicians

Last month, Senator James E. Murray, of the Murray-Wagner-Dingell triumvirate, polled the governors of the states to gather information on the distribution of physicians.

AMA saw a copy of the poll telegram and forwarded copies to all State Medical Associations and Societies. These, in turn, contacted their governors and relayed the profession's attitude toward this obvious boondoggling proposal.

Senator Murray asked for gubernatorial reaction to a proposal that the federal government subsidize physicians in an effort to get them into medically-isolated areas, into public health work, into VA hospitals and into foreign medical missions.

Governor Sherman Adams of New Hampshire replied to Senator, in part, as follows:



"The use of federal subsidies to be used as an inducement to persuade doctors to move into areas other than of their choice is a bold, unwarranted step in the direction of socialized medicine which the people of this state have already registered strong opposition to in communications to New Hampshire's congressional representatives.

**Senator  
Looks for a  
Utopia**

"It is inconceivable that there will ever be enough physicians to take care of all of the medical needs of any given community every 24-hour period. To arrive at such a Utopia would require the stationing of a physician at every country crossroad with medicine bag, car and assistant.

"A much more realistic approach to the question of physician requirements has been worked out cooperatively by community leaders, the county and state medical societies. . . ."

**Tennessee's  
Reply**

Governor Gordon Browning asked his Public Health Commissioner, Dr. R. H. Hutcheson, to reply to Senator Murray.

Dr. Hutcheson also emphasized solution of the distribution problem by cooperation between physicians and civic leaders of the communities needing physicians. He observed that communities could entice doctors, and do it without subsidies, by providing professional facilities, or helping to do so.

He told of some of his personal friends who left public health work for private practice and then made this revealing statement:

"They tell me frankly that they would like to do public health work because they were trained for public health work, but that they do not want to work for the government, largely because of the restrictive requirements connected with government work."

That's one for Senator Murray to mull over.

★

**More  
Doctors in  
State Now**

Pursuing the same subject a bit, it appears from press clippings that Tennessee may have gained more new doctors in the past three months than the "police action" in Korea has taken from us.

The clippings also show that the new doctors are not going to the big city areas, but into the rural sections. This office is making a survey to determine the exact number locating in the state so far this year, and the number going into military service. We think the picture will be a bright one.

Added to this picture, for brightening effect in the next decade, is the increase of admission by the University of Tennessee Medical School from 140 to 200 freshmen each term. That makes U-T now the largest medical school in the world in point of admissions.

★

**Legislative  
Committee  
Actions**

Your Committee on Legislation and Public Policy, headed by Dr. C. M. Hamilton, had an active month in July. Positive action was taken on two measures before Congress.

The Committee obtained telegrams, letters and telephone calls to Congressmen and Senators on an amendment to the general tax bill which would encourage savings, combat inflation and remove certain inequities in the nation's economy.

The amendment would allow citizens to set aside up to 15 per cent of their income annually without it being subject to income tax—IF it is set aside for the purpose of providing for a pension or some type of retirement. Army officers, for example, can do this now but Mr. Average Citizen cannot.

This section of your Journal will report the outcome of the amendment.

Action also was taken on a bill before Congress seeking to allow the Food and Drug Administration to decide which drugs shall be administered only on prescription of a physician. The AMA opposes the measure.

# Public Service

## THE TENNESSEE TEN

(A Harper's Magazine article by Bernard DeVoto prompted many U.S. doctors to ask: "Why doesn't someone answer this distorted essay?" Someone, a Tennessee doctor, has answered it. Answered it calmly, effectively and fairly. Since this reply is Public Relations in its best form, we persuaded the doctor to give us a copy of his letter to Harper's for reprinting here. Your comment would be welcomed.—Ed Bridges.)

"Dear Mr. DeVoto:

"I might use any one of several letterheads, but am using instead blank paper, since I am writing as a physician and a citizen and not as a member of any organization.

"I have on the shelves of my library your YEAR OF DECISION which I enjoyed reading and had accepted as a piece of literature well documented and one which probably involved a great deal of research. Unfortunately, I must now change my mind. Having read your 'Letter to a Family Doctor,' it seems improbable that any author would sign his name to anything which was so poorly investigated on the one hand and carry out careful research on the other. Thus, sir, your YEAR OF DECISION, loses to my mind, its position as accurate reporting. No careful writer would be guilty of quoting the untruths and half-truths which appear in your open letter without investigation. Your statements have a most familiar ring, and I suspect much of the material was lifted from the 'Training Kit for Leaders' published by the Democratic National Committee or similar source.

"By now I know you are wondering in what way you stepped on my toes. Do not be too shocked to learn that monetary considerations play no part. Let me assure you that I, as well as you, am in the same financial difficulties referred to in your letter—that is the same income as of June, 1946. I'll wager that you are in a higher bracket than I, a teacher in a medical school. (Incidentally, I suspect I might do better financially in a scheme of governmental medicine.)

"And so you wonder what axes I may have to grind. If it is at all possible for you to believe that physicians have any other thoughts than those encompassed within a dollar sign, be assured that the great majority have an interest in patients, pay or otherwise, and what is for the good of their patients. You imply that the medical profession is unable to diagnose the problems and propose the solutions of the admitted difficulties in providing adequate medical care. Let me assure you, however, after dealing with patients and doctors for 27 years, that I should be more capable of understanding these problems than you are, sir, Ewing or even Dr. Means, whom I happen to know.

"You do not make the frank statement that you desire a form of bureaucratic medicine. Yet at twenty separate points you either extoll government in medicine or imply that only through some such means can certain problems be answered. By these tokens and your derogatory comments concerning organized medicine's attempts in meeting problems by evolution rather than revolution, I must assume that in your mind there is only one way to settle today's problem in medical care,—namely, government in medicine.

"And now, why am I interested in this whole question? Because good medical care is at stake in any universal or compulsory medical scheme. When something is 'free' it is used to the hilt. 'Fine,' you say, 'that is just what we want—medical care for all.' But what does this mean,—



every splinter, every 'hang-over,' every headache, all minor illnesses, too numerous to mention will be brought to the doctor. Again you say 'fine, each of these minor illnesses might portend a major one,'—but, my friend, the major ones cannot be diagnosed under such circumstances because the physician has insufficient time to properly examine patients! 'Yes,' you say,—'you see we need more doctors, so let's spend more money, build more schools, educate more doctors, so the "hang-overs," splinters and callouses may be treated.' Now, I am not an economist, and from your essay I doubt you are either, but I dare say that by the time we have reached this 'merry-go-round' you and I will have very little of our 1946 salary left with which to buy groceries and shoes.

"And you say,—'that's all propaganda put out by the AMA.' Will you believe me that I arrived at these ideas long ago by plain intelligence—believe it or not, I consider myself intelligent, though you imply there are few intelligent doctors. First, I have talked with physicians practicing under the British system. They are overwhelmed with petty illnesses. 'Propaganda and dissatisfaction,' you say. Secondly, I had the opportunity in 1945 to talk to Germans, in their own tongue—about the Krankenkassen,—the most venerable of the governmental medical schemes. Thirdly, I have been a mining camp physician where medical attention was 'free,'—all I have described above in 'free medical attention' has been within my experience. Lastly, I have spent two decades in the care of indigent and 'low cost' patients. With shame I admit that I used to see 60 patients in four hours three times weekly for four years at Charity Hospital in New Orleans,—the epitome of 'free' medicine. Shame I say, for obviously that can represent only terribly poor medicine. Doctors in Great Britain must see, I am told, some 40 and more patients daily to make a living, with a minimum of 4 forms to be filled out for each patient. What does one do in a regime of 'free' medicine such as this? One can not spend the necessary time in diagnosis and therefore the X-ray and clinical laboratories have the problem passed to them. Again we are caught in a race all around Robin Hood's barn, and where does the money come from for such useless expenditures? (As an aside—I wish you could see the waste in these fields in the governmental agencies you so laud.)

"And so, Mr. DeVoto, in 1955, if you will have compulsory medical insurance, you won't have your \$15.00 bill—but your taxes will more than make up for it. You will go to the office of your doctor,—his secretary will take the complaint of the abdominal pain. Your doctor may give you a few moments for several questions,—a few perfunctory jabs in the belly and sigh, 'Let's see what the X-ray will show.' Off you go to get your barium some 2 to 3 weeks hence when the harassed X-ray laboratory can get you in. After all the reports are in,—you may again see your physician in 3 or 4 weeks,—if your ulcer hasn't perforated and you are still living. After sitting in the waiting room from 3 p.m. to 6 p.m. as the fifty-fifth patient, you see the doctor. Admittedly, he is human, though a grasping, unintelligent 'sap' (as portrayed by you) and tired. He looks at the 'free' X-ray report,—'Hmm. Negative. Let's try this prescription.' You say, 'But, doctor, what do you think of the symptoms?' After looking at the sketchy record the doctor can only answer, 'Mr. DeVoto, I have 8 calls to make. Let's talk it over at your next visit.' You go off to get your 'free' prescription and wonder if there will be a next visit.

"I know this seems melodramatic to you and possibly even to Dr. Means. To me it is as certain as I am writing. The unsurpassed medical care of this country can only deteriorate under a scheme of compulsory health insurance. This, believe it or not, is my reason as a teacher of medicine for being opposed to 'free' medical care.

"I have said enough. I could go on to point out how unfair it is for you to lay the high cost of hospitalization and drugs on the shoulders of the medical profession. Possibly you should be blamed for the increased printing costs and covers of Harper's. Possibly General Motors might like less chrome trimming, but possibly the buyer wants it. Is General Motors to blame?

(Continued on following page)

*From the  
Executive Secretary*

## ORGANIZATIONAL NEWS

### "Dues-ing" Is Confusing

Little wonder that the physician gets mixed up about membership and dues. Most doctors belong to several organizations and the proper membership classification and dues can be confusing. In fact, your Executive Secretary and the AMA gets mixed up sometimes, too.

### A Guide for Determining Proper Mem- bership Classi- fication

For your information, and particularly for local society secretaries, here's the latest word on membership in the TSMA and the AMA.

#### AMA and TSMA

##### AMA

##### Kinds of members:

- 1) Active (dues-paying, \$25.00)
- 2) Associate—not active dues-paying members of the local and state societies.

##### TSMA

##### Kinds of members:

- 1) Active (dues-paying, \$25.00)
- 2) Associate—commissioned officers in Army, Navy, VA, PHS.

### Exemptions

##### EXEMPT FROM AMA DUES:

- 1) Associate members
- 2) Active members who have retired from practice and are excused from part or all of local and state dues.
- 3) Active members over 70 years
- 4) Active members for whom payment would constitute hardship and who are excused from part or all of local and state dues.
- 5) Active members in Military service. Those entering service before July 1st pay half-year (12.50) first year, subsequent service years exempted.
- 6) Internes and residents in actual training for not more than five years after medical school graduation.

- 3) Veteran—those so elected by local society because of age or impaired health, also retired from practice.

- 4) Honorary—conferred by House of Delegates for pre-eminence in scientific accomplishment.

##### EXEMPT FROM STATE DUES:

- 1) Associate members
- 2) Veteran members
- 3) Honorary members
- 4) Military Service members

### AMA Fellow- ship, How Secured

Active members of the AMA are eligible for AMA Fellowship. Fellowship dues are \$5.00 additional (not included in membership dues of \$25.00) and are payable direct to the AMA. Application for Fellowship should be made by the physician to the Director of Fellowship Records, American Medical Association, 535 N. Dearborn, Chicago 10.



**AMA Dues  
\$12.50 for  
Members  
Joining After  
July 1**

If a physician joins the AMA for the first time (new members) after July 1 he pays only \$12.50 AMA dues for that year; \$25.00 thereafter. AMA dues become delinquent on December 31 of a given year. Members dropped from AMA roll for non-payment of dues must pay up previous indebtedness before re-instatement.

**Members of  
TSMA Not  
Required to  
Pay Back Dues**

While the Tennessee State Medical Association does not accept part payment for new members irrespective of the time of joining, re-instated members do not have to pay any "back dues." It has been proposed that our By-Laws be amended to permit new members who join after July 1 to pay \$12.50 dues for the first year. Some physicians believe that the Tennessee State Medical Association should require re-instated members to pay up previous year's dues also. This requirement would set aside the present habit which some members have of being "on again, off again" members.

★

**Another Local  
Society  
Contemplates  
Executive  
Secretaryship**

The Memphis and Shelby County Medical Society is exploring the desirability of employing a full-time Executive Secretary. Those favoring this move are aware of the increasing demands upon their members, particularly in the fields of organization, business management, publicity, public service and medical public relations.

**The Secre-  
tary's Job**

The ever-increasing activities of the Society place heavy burdens upon the busy doctors who serve on the numerous committees, boards, and as officers. Correlating the work of committees, assuming administrative details, managing the business affairs, conducting public service projects, directing public relations, maintaining society records, and otherwise taking the "leg work" off of officers, committeemen, and members constitute a few of the valuable services which an executive secretary could render this large and active society.

**Proper  
Medical  
Society-  
Secretary  
Relationships**

A fundamental and cardinal principle underlying medical society-executive secretary set-ups is that the basic policies and purposes of the society be determined by the society through its duly constituted policy-making body or bodies. The executive secretary should be an administrative officer through whose activities the basic philosophy, policies, objectives and purposes are promoted and achieved. Any executive secretary will do well to keep this discrimination of prerogatives constantly in mind, remembering that policy-making is the province of the society, and that he is the servant of the profession. Any other concept of the relationship is fraught with danger—both to the secretary and the society.

★

**Tennessee Plan  
Developments**

The Executive Sub-Committee of the Prepaid Insurance Committee has been working hard on the fee schedule for Plan B of the Tennessee Plan and the rider which will provide benefits for medical care in hospitalized cases. It appears now that the important changes authorized by the House of Delegates in July will soon be ready.

**Things Yet to  
Be Done**

Following the completion of the fee schedule, conferences with the underwriters will have to be held, actuarial studies conducted, and the physicians of the State provided with the new schedules and a participating agreement to sign. The new Schedule for Plan B and for medical benefits cannot be announced until "participating agreements" are secured from a large number of physicians who will service the contract. More than 1,650 doctors are now participating in the original Tennessee Plan, more than 300,000 are enrolled, and twenty-nine insurance companies and associations are selling the Plan.

# Public Service

THE TENNESSEE TEN

## Public Relations and the WA

The doctor often will find his best public relations representative right at home in his domestic relations department.

Physicians' wives acting as individuals in society or as members of various clubs and organizations, can be of much more value to their husbands and to the medical profession, than all the Public Service Directors in the land.

In Tennessee, the Woman's Auxiliaries have proven to be the strong right hand of your Public Service department. It is heartening to note that Auxiliary activities are increasing in Tennessee. Several more local units have been formed in recent years. It is hoped that this year will bring the organization of several more.

In another section of this issue of The Journal appears the second Auxiliary News Letter which is sent individually to every member in the state. This reports the meeting of the Board of Directors of the State Auxiliary, which met in Nashville under direction of Mrs. Lynch D. Bennett, President.

In one state I visited once I asked if the doctors took advantage of the wonderful work auxiliaries could do. My doctor friend replied that "the Auxiliary is a tea-drinking organization in this state and we don't work with them."

I asked an impertinent question—whether or not the doctors in that state had refused to allow the auxiliary members do anything except drink tea. The auxiliaries always look to the Medical Societies to which they are attached to give the green light on policies and projects. It is encouraging that Tennessee Medical Societies have not hamstrung their auxiliaries. Consequently, many solid service projects are executed by both the State and local Auxiliaries.

## Medical Booths At the Fairs

This is the Fair season and several Medical Societies are planning or already exhibiting in booths in the educational buildings of the fairs. It is the most effective and economical way of reaching masses of people with our health information, medical education for the layman, and medico-economic information. It is an excellent field for reaching the people with vital facts about The Tennessee Plan of voluntary health insurance. Results of past fair exhibits are convincing. Last year an exhibit operated by the Knoxville Academy of Medicine at the East Tennessee Teachers Association convention brought special requests from more than 60 schools for health movies, pamphlets and material for debates on compulsory health insurance. The booth will be operated again by the Academy at the ETEA convention next month.

## Knoxville and Nashville Exhibit

The Knoxville Academy of Medicine also exhibited this season at the Tennessee Valley Agricultural and Industrial Exposition. One large booth combined the exhibits of the Academy, the East Tennessee Heart Association, and the East Tennessee Cancer Society.

The exhibit included health movies, the specially constructed display promoting the Tennessee Plan of health insurance, literature, a free blood pressure test and a heart quiz board with electric signals.

Personnel manning the booth at Knoxville included nurses, interns, heart and cancer executives, and a representative of the State Association. The project was sponsored by the Academy's Public Service Committee and headed by Dr. Roy L. McDonald who turned in a solid job.

For the first time, the State Association and the Nashville Academy of Medicine exhibited at the State Fair in Nashville. They joined forces in a large booth and followed the educational pattern established by Knoxville several years ago. An additional "crowd-stopper" in the educa-



tional field was a skeleton borrowed from Vanderbilt School of Medicine. Medical textbooks opened to a plate of the skeleton identified all the bones. Movies shown covered the fields of immunization, the new malaria menace, nutrition, nursing of infants, heart disease and cancer.

The exhibits have moved completely away from the negative approach of shouting about socialized medicine. The positive story of the contributions of the medical profession has supplanted the argumentative, controversial approach.

#### **Rural Health Council Project**

It is often difficult to get across the idea that health is everybody's responsibility—not just the doctor's. The public is inclined to blame every facet of medical care on the doctor, many of them which he cannot possibly control. If the hospital, the druggist, the nurse, do not please the patient, the doctor is blamed.

That may be partially the fault of the medical profession. It has not often encouraged the laymen in communities to assume responsibilities for health measures such as sanitation, immunization campaigns, clinic and hospital construction and health education. The doctors have taken on all this, so more and more is expected of them.

But there IS a way out of this dilemma. It is through the organization of local health councils. The newly-organized Rural Health Committee of the TSMA has recognized this fact and is just projecting a campaign to organize as many of these councils as possible in Tennessee.

The State Board of the Woman's Auxiliary heard an explanation of the project by Dr. W. N. Cook of Columbia, Committee Chairman, and expressed a desire to assist. The auxiliary can be of great value in helping to organize such councils.

What can a health council do and who serves on it? Here is a proposed outline:

#### **HEALTH COUNCILS**

##### **Characteristics**

- (1) a Health Council is a non-political, non-partisan body without limitation as to race or color; it is essentially a conference and coordinating body.
- (2) does not render direct services—except for demonstration purposes approved by local health agencies.
- (3) does not compete with its member agencies.
- (4) should have liaison with other recreational and welfare agencies.
- (5) should determine its own policies—in communities where there is a local Community Council—the Health Council should constitute the Health Division of that overall social planning body.
- (6) in cases where a Health Council covers a large geographical area, all communities within that area maintaining local Health Councils or Health Committees should affiliate such units with the area Health Council.

##### **Activities or Functions**

- (1) a Health Council studies the health needs of the Community or area and endeavors to develop a community health program to meet these needs.
- (2) it stimulates public interest in community health problems thus strengthening public opinion in the interest of public health improvements.
- (3) it may render central health services in such fields as statistics, research, health education and health information.
- (4) it may promote needed health legislation.
- (5) it promotes the efficient operation of public health work through the coordination of health activities within the area—local community, state or nation—by means of the elimination of duplication of effort and by the stimulation of new needed services.
- (6) it directs public opinion toward the importance of an efficient local health department.
- (7) it may conduct community health surveys.
- (8) it should become familiar with accepted standards in the field of public health.

*From the  
Executive Secretary*

## ORGANIZATIONAL NEWS

### Plans for Annual Meeting

With the help of a top-flight committee on arrangements of the Knoxville Academy of Medicine, we have completed the major planning for the Annual Meeting of the Association next April.

### Headquarters Andrew Johnson Hotel

Headquarters will be the Andrew Johnson Hotel. After conferences with the manager, agreements have been reached on all matters affecting space, rentals, rooms, exhibit space, reference committee rooms, and space for the specialty sections which meet concurrently with the Association.

### Specialty Group Meetings

Officers of the specialty groups—EENT, Orthopedics, Anesthesiologists, Radiologists, Pathologists, Pediatricians, Academy of General Practice, and Woman's Auxiliary—are urgently requested to write the Executive Secretary, stating the hotel facilities needed for each specialty group. We will need to know time of all assemblies, number expected, dinners or luncheons planned, and any special facilities required.

### Public Space Limited

We have reserved all the conference rooms, public space, etc., but will be happy to share available space with the specialty groups. Secretaries, please write us now. We will assign on the basis of need; however, the Andrew Johnson does not have enough facilities for the State Association and all specialty groups and we will share on a first come first served basis. We have not reserved public space at any other Knoxville hotel. Specialty groups will find adequate accommodations at the Farragut, the Arnold and the St. James.

### Program Committee at Work

The Scientific Program Committee is hard at work preparing the scientific program. Dr. Kampmeier, Chairman, will appreciate suggestions on papers desired.

### The Meeting in a Nutshell

Summing up—here's where plans now stand:

WHAT  
WHEN  
WHERE

Annual Meeting, TSMA  
April 7-8-9, 1952  
Knoxville

WHY  
WHO'S EXPECTED

Andrew Johnson Hotel, Headquarters  
Education, Business, and Fun  
Every member of the Association—  
wives, too

WHAT DO NOW

Mark your calendar, make hotel reservation, TALK ABOUT IT TO YOUR  
COLLEAGUES

★

### Prepaid Insurance Committee Completes Assignment

The Executive Sub-Committee of the Prepaid Insurance Committee has met on the average of once weekly since July, 8, attempting to carry out the instructions of the House of Delegates to 1) Revise the fee schedule of the Tennessee Plan for the \$2400-3600 income group, 2) prepare a fee schedule for "Plan B," for \$3000-4500 income groups, and 3) prepare a rider providing medical benefits for non-surgical cases (in hospital).

### Confers with Underwriters

The Executive Committee has virtually completed the above assignments. Last month the Sub-Committee held a three-hour conference with the Health Insurance Council of Tennessee and representatives of our Blue Cross underwriters to 1) examine the fee schedules from an



actuarial viewpoint, 2) evaluate sales problems, 3) discuss administrative difficulties, and otherwise determine the workability of the revisions from all points of view—the participating doctor, the insurance underwriter and the public.

**"Two Plan"  
Concept Hits  
Snags**

The findings were discouraging. Among them were these:

1) That two separate schedules of fees, unless percentage multiples of each other, are undesirable to the majority of our 29 underwriters.

2) That it is impossible for certain segments of the population to know AT TIME OF PURCHASE which Plan (fee schedule) would provide full coverage. For example, farmers cannot tell a year ahead what their income will be. Blue Cross, the underwriter working hard to extend the Tennessee Plan to farmers, regarded two Plans as totally unworkable for their prospective 20,000 farm families.

3) Provision for changing an employee from one Plan to the other because of variations in income would pose a difficult problem; while individual contracts would be even more impossible to change to insure full coverage.

**Committee  
Believes  
Two Plans  
Unworkable**

It is the Executive Sub-Committee's judgment that these administrative and technical problems preclude the possibility of developing the two proposed Plans at the present time. It believes that two plans would result in confusion to participating physicians and insured persons as well. It will, therefore, submit its studies, findings and recommendations to the full Prepaid Insurance Committee for evaluation and further instruction.

**Original  
Tennessee  
Plan to be  
Revised**

In the meanwhile, underwriters are continuing to sell the original Tennessee Plan (\$175.00 maximum benefit, \$2400-3600 income limits). The Committee will continue its study on revision of the present fee schedule which may have to constitute the Tennessee Plan for some time to come. Revisions made to date, but not yet official, have removed the inequities in the present schedule and provide for \$200.00 maximum benefit.

**Scope of  
Plan**

Further perfection of the basic Tennessee Plan, without administrative difficulties, can produce a plan that will guarantee full service to potentially 70 per cent of the State's population.



**GPs Start  
Post-Graduate  
Study**

The Andrew Jackson Academy of General Practice has worked out a post-graduate course for all physicians in Middle Tennessee—GPs or not. The lectures, given by members of the Vanderbilt Medical School Staff, will provide 20-24 hours of credit.

**Vanderbilt  
Staff  
Participates**

The course began October 11 in Pulaski at the regular bi-monthly meeting of the Academy. In addition to the formal lectures scheduled for each meeting of the Academy, Vanderbilt will hold two full days of clinical demonstrations each fall and spring, providing 6-8 hours of the above 24-hour total.

**Tennessee  
Academy of  
GPs Defrays  
Cost**

There is no registration fee for the lectures or clinical demonstrations. The Tennessee Academy of General Practice has generously voted to defray the necessary expenses of the course. The Tennessee Academy has expressed a willingness to finance similar courses in East and West Tennessee if desired.

**Pilot  
Experiment—  
State-Wide  
Application?**

This inexpensive and practical method of providing accredited post-graduate education will be watched carefully by the Tennessee State Medical Association. It may well point the way to a more economical method of taking post-graduate education to the entire profession in Tennessee.

*From the  
Executive Secretary*

## ORGANIZATIONAL NEWS

### More About Annual Meeting

It will be easy for physicians to get hotel accommodations for the Annual Meeting in Knoxville next April. The Knoxville Academy Committee on Arrangements has appointed a subcommittee on hotels composed of Drs. R. H. Monger, Chairman, C. C. Smeltzer, and J. P. Cullum. Reservation blanks will appear in future Journal issues, as well as in the program which will be mailed to every member in March. Members will fill out request, stating hotel preference and type of room and MAIL TO THE KNOXVILLE ACADEMY OF MEDICINE. Confirmations will be mailed out by the hotels.

★

### Where's That Field Secretary?

Ed Bridges, our versatile and friendly Field Secretary and Director of Public Service, has been dubbed "the wandering minstrel" by the headquarters office. His October itinerary is typical and indicates his valuable and varied services to local societies—just try to keep up with him!

October 2-4-5	Bradley County Society, Chattanooga Society Warren-White-VanBuren Society
October 10-11	Chattanooga Society via intermediate points
October 24-25-26	Knoxville Academy of Medicine
October 28	Memphis Society and on to French Lick

And he does a lot of work with local society officers along the way to specific engagements. His work in the field, coupled with a jam-packed office duty and night and Sunday meetings means that he eats, sleeps and dreams the welfare of medicine in Tennessee. Ed, we appreciate your loyalty, ability and dedication to the profession.

★

### 920 Physicians in VA Home Town Program

As of October 1, 920 members of the Association were serving as participating physicians in the Home Town Medical Care Program of the VA. Under the contract existing between the VA and this Association, these physicians received \$135,129.46 for their services to beneficiaries during the last fiscal year. During the same period, 570 participating dentists in Tennessee received \$466,911.75 for dental services to veterans.

★

Your Executive Secretary will kill three birds with one stone during the week of November 6-13. While in Chicago, he will address the Third National School Health Conference, and attend conferences on Civil Defense and State Medical Journals. Dr. R. H. Kampmeier, Editor, will also attend the Journal Conference, and Dr. W. C. Dixon will attend the Civil Defense Conference, representing the Association's Committee on Emergency Medical Service.

★

Tennessee's "Outstanding General Practitioner", Dr. J. Tom Moore of Algood, has been entered as our candidate for the AMA's award as "General Practitioner of the year". The AMA honor will be conferred by election by the AMA House of Delegates in December in Los Angeles. "Dr. Tom" has been certified as our official candidate. The mechanics of selection is as follows:

- (1) State societies certify their winners and file exhibits with AMA Board of Trustees
- (2) AMA Board appoints committee on GP Award from its members who select five from the list
- (3) Full AMA Board selects three from the committee's five and presents their names to the House, one of whom is elected.



**Doctors  
Hosts at  
Hotel Dinner**

In Knoxville, the three meetings were all planned for dinner sessions at a hotel. Doctors paid for the dinners for their office assistants, and the menu was excellent. The course was sponsored as a special project of the Public Service Committee of the Knoxville Academy of Medicine.

Numerous Knoxville doctors were represented by all their office assistants, not just the receptionist. They pointed out that eventually everyone in the office would meet patients in person or by telephone. Some physicians in Knoxville asked if they could sit in. They were most welcome and their interest is appreciated by your Public Service Director. We believe that this is a REAL Public Relations problem and that the course is a realistic way of tackling it. Doctors' Assistants are fine people and deserve any assistance we can give them in their difficult job of dealing with people worried about their health.

★

**Chattanooga  
Auxiliary Has  
Special  
Meeting**

Doctors and their wives of Hamilton and Bradley counties assembled in Chattanooga last month to hear an airing of public relations, legislative and insurance problems. The special meeting, first of its kind in that area, was sponsored by the Woman's Auxiliary to the Chattanooga-Hamilton County Medical Society. Prime movers in plans for the meeting were Mrs. J. Culpepper Brooks, Jr., Auxiliary President, Mrs. Augustus McCravey, Auxiliary Public Relations chairman, Mrs. H. D. Hickey, State Auxiliary Public Relations chairman, Dr. J. L. Hamilton, President of the Society, and Dr. Guy Francis, Society program chairman.

More than 100 guests heard these four speakers:

Dr. William A. Garrott, Cleveland, member of your Public Service Committee, discussing "Medical Ethics and The Patient."

Mr. Leo E. Brown, Director of the Public Relations Department of the American Medical Association, answering the question, "Who Is The AMA?"

Dr. Daugh W. Smith, Nashville, President-Elect of The TSMA, reporting the progress and problems of The Tennessee Plan for Voluntary Health Insurance.

Dr. L. W. Edwards, Nashville, Chairman of the Public Service Committee, detailing the progress made on the points of The Tennessee Ten.

Dr. Hamilton presided over the evening meeting, held in the auditorium of the Interstate Life and Casualty Insurance building. Auxiliary members were hosts following the meeting at a social refreshment hour in the Penthouse of the beautiful new Interstate Building. Coffee and doughnuts were served.

★

**Medical  
Exhibits Are  
Good PR**

The medical exhibits conducted under local Public Service Committees' sponsorship in Knoxville and Nashville during September and October provided an excellent medium for reaching the public with medical information and health education.

First booth was that of the Knoxville Academy of Medicine, in conjunction with East Tennessee Heart and Cancer organizations, at the Tennessee Valley Industrial and Agricultural Exposition. Free blood pressure tests were given and interns, externs, and nurses on duty were literally swamped every day. Thousands of pieces of "positive" literature were distributed to fair-goers. Health movies were shown continuously and arrangements made to lend them to schools and farm organizations later this fall. Dr. Roy L. McDonald headed the fair project.

The second booth was under joint sponsorship of the Nashville Academy of Medicine and the TSMA, at the Tennessee State Fair. It followed the pattern of the Knoxville exhibit and thousands of persons were contacted. It definitely was a satisfactory project.

The Knoxville Academy of Medicine, strong believers in assisting schools whenever possible, operated a booth at the annual convention of the East Tennessee Teachers Association. Dr. Charles C. Smeltzer arranged for this exhibit. Special pamphlets on "The Teacher's Health" and literature on The Tennessee Plan augmented the showing of health movies made by Walt Disney.

*From the  
Executive Secretary*

## ORGANIZATIONAL NEWS

### **Trustees Hold Semi-Annual Meeting**

The semi-annual meeting of the Board of Trustees was held in Knoxville on Sunday, December 2, 1951, at the Knoxville Academy of Medicine. Present were:

Dr. Daugh W. Smith, Nashville, Chairman and Treasurer  
Dr. Charles C. Trabue, IV, Nashville  
Dr. Carrol Turner, Memphis  
Dr. A. M. Patterson, Chattanooga  
Dr. Ralph H. Monger, Knoxville  
Others present were:  
Dr. E. G. Kelly, Memphis, President  
Dr. R. H. Kampmeier, Nashville, Secretary-Editor  
Mr. V. O. Foster, Nashville, Executive Secretary.

### **Heavy Agenda Cleared in Record Time**

The Board moved rapidly through a heavy agenda, although the meeting was adjourned after only two hours and fifteen minutes of working time. The proceedings were disc recorded and every member has received his personal copy.

### **Important Actions**

Among the actions taken by the Board were the following:

### **AMA Delegates Uninstructed**

1) Instructed our AMA delegates to use their best judgment on matters which would come before the AMA's December session in Los Angeles

### **AMA Delegation Personnel to Be Reduced**

2) Referred the matter of the personnel of our AMA delegation for 1952 to the House of Delegates of the TSMA next April (We will lose one of our three AMA delegates next year since future AMA representation will be based on one delegate to each 1,000 AMA DUES-PAYING MEMBERS in state associations, not total state members)

### **Executive Secretary's Report**

3) Approved the report of the Executive Secretary. The report dealt with five major aspects of the Association's business--a) Membership, b) Finance, c) Office personnel and management, d) Journal, and c) Headquarters facilities.

### **Membership 2,015 in November**

Membership of the Association (as of November 27) was reported as 2,015--1,908 Active Members and 107 Veteran Members. Of the 1,908 Active Members, 1,753 had paid 1951 AMA dues also, or 92%.

### **Financial Operations Outlined in Detail**

The Executive Secretary's financial report was supported by a detailed statement of receipts and disbursements during the accounting period of January 1-September 30. All fund conditions were set out and an estimate of all fund conditions as of December 31 was filed. The report showed that only 68% of the 1951 budget has been expended during the three fiscal quarters (75% of budget time) and predicted that approximately 10% of the 1951 budget will be unexpended at the close of the year.

### **Office Personnel**

Office personnel was reported as the same as last year--five employees. Work loads of the personnel were set out showing how responsibilities are assigned to all personnel.



<b>Journal Under Contract</b>	Journal costs were analyzed and a proposed publishing contract was approved. The Board also approved the recommendation that the subscription price of the Journal be increased to \$5.00 per year; 50c single copies. (All members receive the Journal as a part of their \$25.00 state dues.) Tennessee is one of the very few states where Journal advertising revenue exceeds the actual cost of publishing and mailing the Journal.
<b>Headquarters Space Reported Inadequate</b>	Headquarters office space was described as inadequate and inconvenient. Possible solutions were discussed including renting more adequate space, purchasing and remodeling older property in the University-Hospital area, and construction of a new and permanent home for the Association.
<b>Dr. Monger to Head Drive for Association Home</b>	4) Authorized Dr. Ralph Monger, at his own request, to head a committee to raise funds by private subscription from members to build a suitable and adequate home for the Association in Nashville. Following this approval, Dr. Kyle Copenhaver, of Knoxville, a visitor present, made the first donation, and a generous one, to the fund. (Committee personnel and details will be announced later)
<b>1952 Budget Adopted</b>	5) Adopted the budget for 1952 which sets out in detail the anticipated receipts and expenditures for 1952
<b>Fluoridation Approved</b>	6) Adopted a resolution approving the principle of the fluoridation of public water supplies
<b>Compensation Policy Referred</b>	7) Referred a letter requesting assistance in the formulation of policy in compensation practice and administration by the Council on Industrial Health, AMA, to our Industrial Health Committee, Dr. Jean S. Felton, Oak Ridge, Chairman for handling
<b>Two Guest Speakers Authorized</b>	8) Authorized the Scientific Program Committee to pay expenses of two guest speakers at the Annual Meeting, one the President's guest, the other the guest of the Scientific Program Committee
<b>Provisional Membership for Medical Students</b>	9) Authorized and instructed Editor Kampmeier to write a proposed change in Article IV of the Constitution providing a provisional type of membership in the Association for medical students. The Board declared its support of such a change and will recommend the adoption of such an amendment by the House of Delegates next April
<b>Public Service Committee to Be Enlarged</b>	10) Authorized the Chairman, in consultation with Dr. L. W. Edwards and Dr. James Overall, to appoint an additional member representing the Pediatricians on the Public Service Committee
<b>Dr. Overholt Appointed to UMWA Committee</b>	11) Elected Dr. B. M. Overholt, Knoxville to fill out the unexpired term of Dr. Herbert Acuff (deceased) on the Liaison Committee to the UMWA. Dr. Overholt's term expires in April, 1952
<b>Archives Committee Authorized</b>	12) Authorized the Chairman to appoint an Archives Committee to plan for the proper storage and preservation of documents, et cetera, expected to be of interest to medical chronologists and historians
<b>Thanks to the Mongers</b>	13) Officially expressed the Board's grateful appreciation to Dr. and Mrs. Monger for a most delightful weekend. (Members of the Board and their wives were guests of the Mongers at the Tennessee-Vanderbilt (What-a) game, followed by a wonderful dinner party at the Cherokee Country Club).
<b>Next Meeting</b>	The next regular session of the Board of Trustees will be held during the Annual Meeting of the Association in Knoxville next April 7, 8, and 9.

# Public Service

THE TENNESSEE TEN

## PR Classes for Doctors' Assistants Are Spreading

The Public Relations Course for Doctors' Assistants was completed for the Knoxville Academy of Medicine on the evening of December 8. At the final class, five insurance experts formed a panel and doctors' assistants and doctors shot questions at them concerning the make-up of claim forms and general procedure and coverage.

The Consolidated Medical Assembly of West Tennessee and the Nashville Academy of Medicine and Davidson County Medical Society have requested that this course, provided through the Public Service Committee of The Tennessee State Medical Association, be given in those areas. They will run, for both those societies, in January, February and March. The classes will be offered to Memphis for the same three months, and to every society in the state next year.

Tennessee is the first state in the nation whose Medical Association is advancing this service to doctors' assistants. The magazine, Medical Economics, has asked for transcripts of the classes for the purpose of writing a story about the project. The AMA Public Relations Department wants to spread the idea to all other member societies throughout the nation and our Territorial Possessions.

## A New PR Procedure in Medical Care Costs

In most instances, doctors feel that in good taste they cannot discuss fees and services at the first meeting with a patient. The patient, likewise, is extremely hesitant to open the subject. Therefore, the profession has badly needed some stimulant that would give the patient a graceful way to open the subject at the first meeting with the physician, and thus avoid those later misunderstandings.

Such an opening has been provided, we feel, in the production of an attractive plaque for your office wall, which bears this brief message:

To All My Patients:

I invite you to discuss frankly with me any questions regarding my services or my fees. The best medical service is based on a friendly mutual understanding between doctor and patient.

We are indebted to the Public Relations Department of The American Medical Association for this idea. Please turn this page and you will find an illustration of the plaque and other pertinent information to assist you in obtaining one. This plaque can increase understanding for every practicing physician. Given a prominent place on physicians' walls, or desks, it will show that American doctors are sincerely interested in providing the best of medical service, the kind of service that comes only from friendly, mutual understanding.





# In Recognition of



her enrollment and helpful participation in a "Course in Public Relations" for doctors' office personnel, conducted by the Public Service Committee of the Knoxville Academy of Medicine,

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is hereby awarded the degree of D. A.—Doctor's Assistant. She is a valuable member of the Medical Team striving to extend the highest quality medical care to the American People.

Joe L. Raulston, M. D., President

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C. C. Smeltzer, M. D., Chmn.  
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